

Service Manual

Cassette Deck

RS-M14

(Silver Face)
(Black Face)

Metal Tape Compatible Stereo Cassette Deck
with Peak-Hold FL Meters, Soft-Touch Controls and
Rewind Auto-Play Convenience



This is the Service Manual for the following areas.

- For all European areas except United Kingdom.
- For United Kingdom.
- For Asia, Latin America, Middle East and Africa areas.
- For Australia.
- For Asian PX.
- For European PX.

RS-M24 MECHANISM SERIES

Specifications

Track system:	4-track 2-channel stereo recording and playback	Outputs:	LINE; output level 420 mV, output impedance 1.5 k Ω or less, load impedance 22 k Ω over HEADPHONE; output level 80 mV, load impedance 8 Ω
Tape speed:	4.8 cm/s	Rec/Pb connection:	5P DIN type; input sensitivity 0.25 mV, impedance 5.3 k Ω output level 420 mV, impedance 5.2 k Ω
Wow and flutter:	0.05% (WRMS), $\pm 0.14\%$ (DIN)	Bias frequency:	80 kHz
Frequency response:	Metal tape; 20–18,000 Hz 30–17,000 Hz (DIN) CrO ₂ /Fe-Cr tape; 20–18,000 Hz 30–16,000 Hz (DIN) Normal tape; 20–17,000 Hz 30–15,000 Hz (DIN)	Motor:	Electrical DC governor motor
Signal-to-noise ratio:	Dolby [*] NR in; 67 dB (above 5 kHz) Dolby NR out; 57 dB (signal level = max. recording level, Fe-Cr/CrO ₂ type tape)	Heads:	2-head system; 1-MX head for record/playback 1-double-gap ferrite head for erasure
Fast forward and rewind time:	Approx. 90 seconds with C-60 cassette tape	Power requirements:	AC; 110/125/220/240 V, 50-60 Hz
Inputs:	MIC; sensitivity 0.25 mV, input impedance 25 k Ω over applicable microphone impedance 400 Ω –10 k Ω LINE; sensitivity 60 mV, input impedance 40 k Ω	Power consumption:	15 W (for European areas and Australia) 13 W (for Asia, Latin America, Middle East, Africa areas and PX.)
		Dimensions:	43.0 cm (W) \times 11.9 cm (H) \times 24.6 cm (D)
		Weight:	4.3 kg

Specifications are subject to change without notice.

* 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories.

Technics

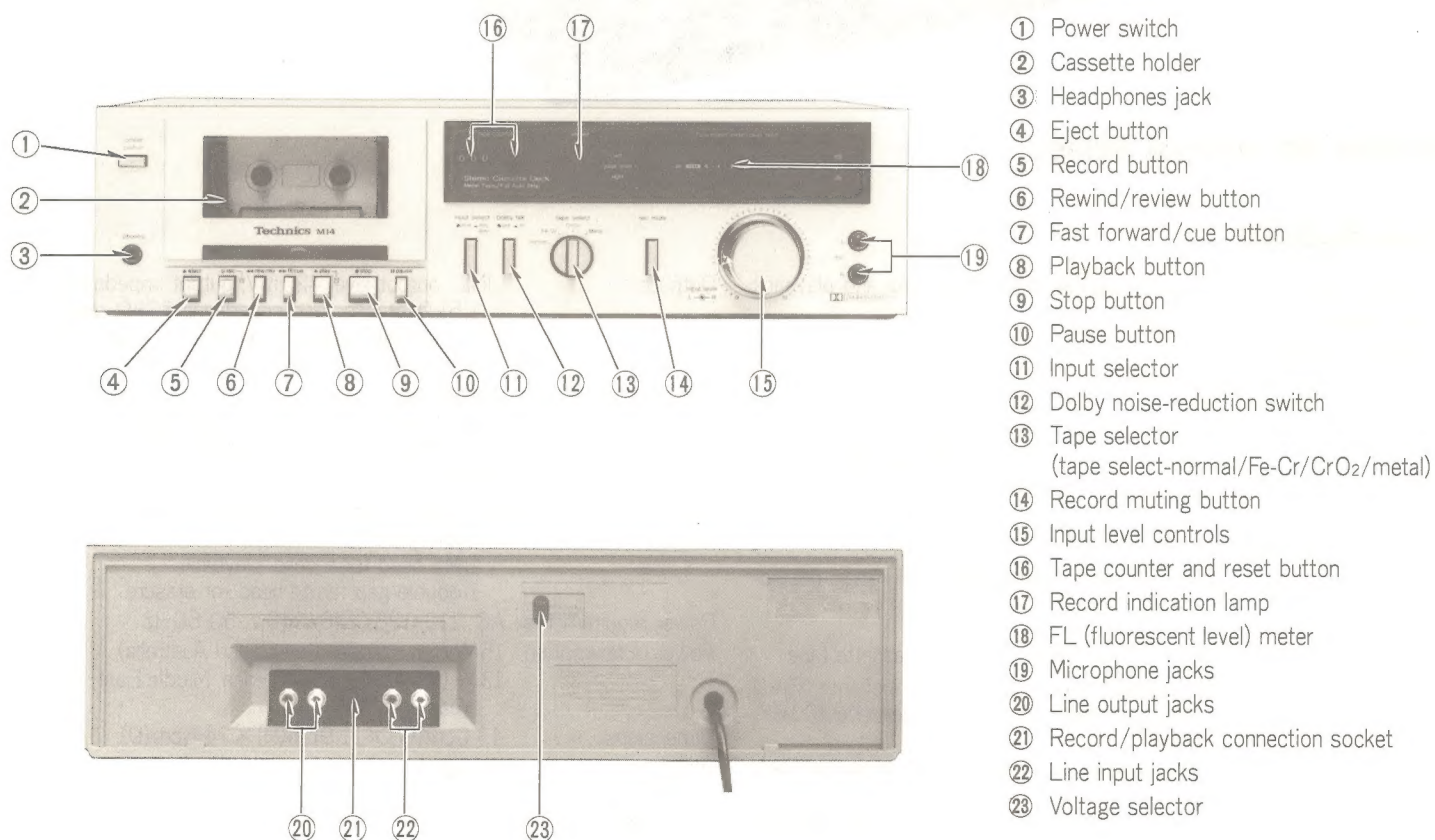
Panasonic Tokyo
Matsushita Electric Industrial Co., Ltd.
17-15, 6-chome, Shinbashi, Minato-ku, Tokyo 105 Japan

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

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LOCATION OF CONTROLS AND COMPONENTS



DISASSEMBLY INSTRUCTIONS

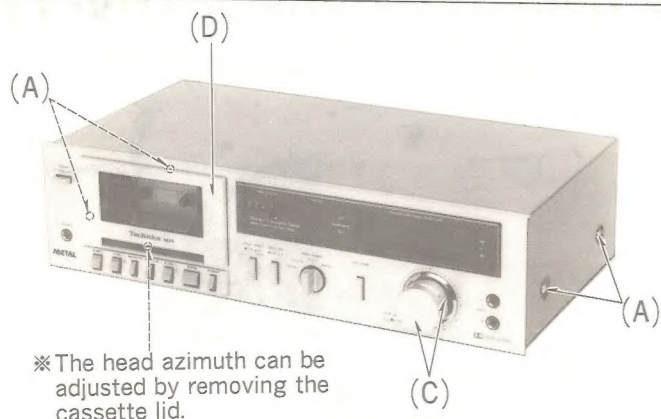


Fig. 3

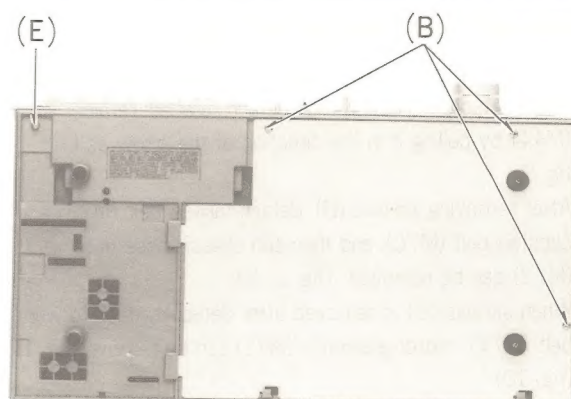


Fig. 4

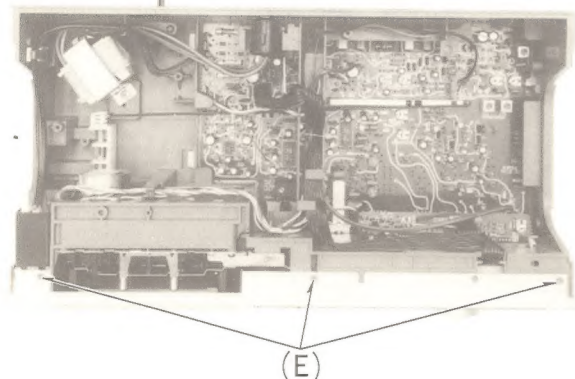


Fig. 5

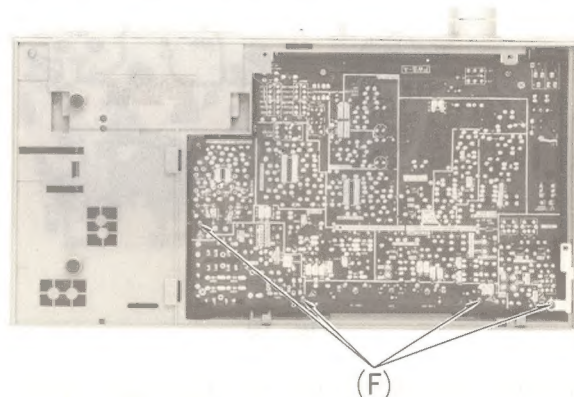


Fig. 6

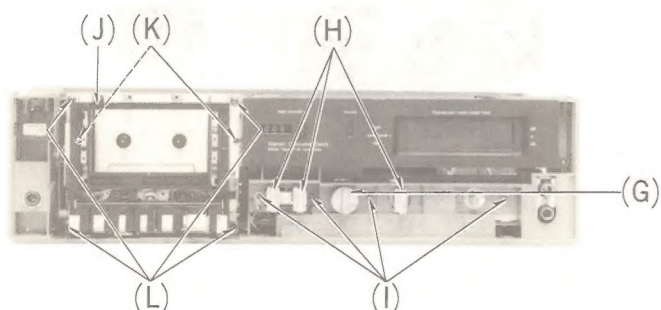


Fig. 7

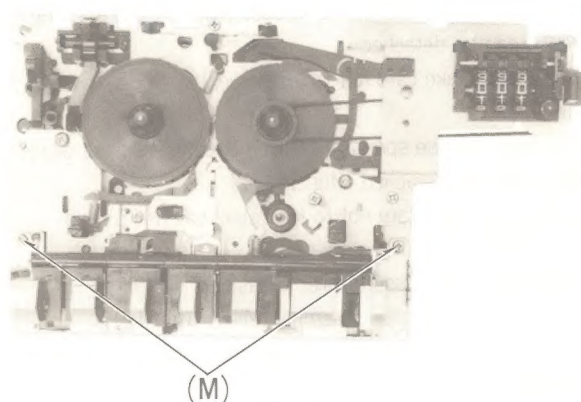


Fig. 8

Procedure	To remove —	Remove —	Shown in fig. —
1	Case cover	• 4 screws (A)	3
2	Bottom cover	• 3 screws (B)	4
3	Front panel	• 2 control knobs (C) • Cassette lid (D) • 4 screws (E)	3 3 4, 5
4	Main circuit board	• 4 red screws (F) • Tape select knob (G) • 3 push buttons (H) • 4 screws (I)	6 7 7 7
4	Chassis cover assembly and mechanism unit	• Cassette holder (J) • 2 black screws (K) • 4 screws (L)	7 7 7
5	Operation button assembly	• 2 screws (M)	8

DISASSEMBLY NOTES (MECHANISM UNIT)

• Precautions for removal of the motor

When removing the motor, follow the procedure given below.

1. Remove screw (A), and then detach flywheel retainer (M44) by pulling it in the direction of the arrow as in fig. 9.
2. After removing screws (B), detach takeup belt (M78) and capstan belt (M76), and then sub chassis assembly (M72) can be removed. (fig. 9, 10)
3. When screws (C) is removed after detaching fast forward belt (M77), motor assembly (M71) can be removed. (fig. 10)

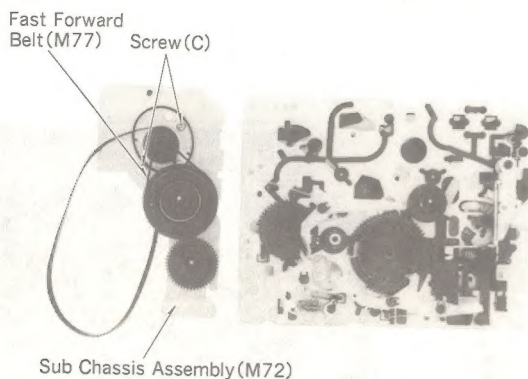


Fig. 10

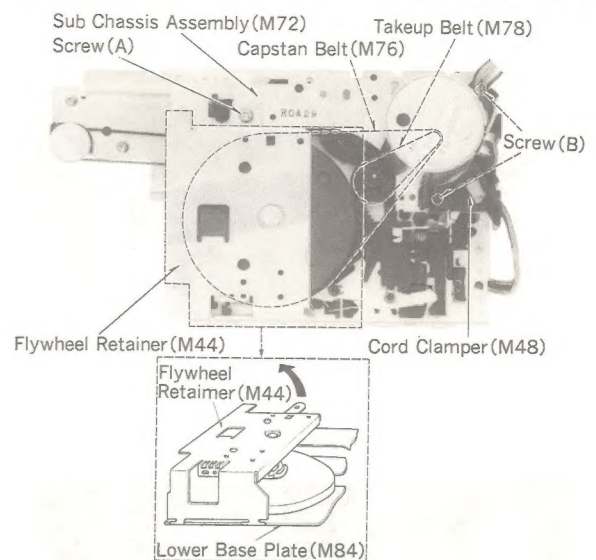


Fig. 9

• Head base plate (M57) and upper base plate (M83) removing procedure

1. With screw (D) removed, head base plate pressure spring (M66) can be detached.
In this case, take care not to lose steel ball (M65). (fig. 11)
2. With head release spring (M68) removed, head base plate (M57) can be detached. (fig. 11, 12)
In this case, take care not to lose steel ball (M65) and roller (M64).
3. After removing pressure roller release spring (M25), remove pressure roller assembly (M40). (fig. 12)
4. Remove screw (E), and then upper base plate (M83) can be detached. (fig. 12)

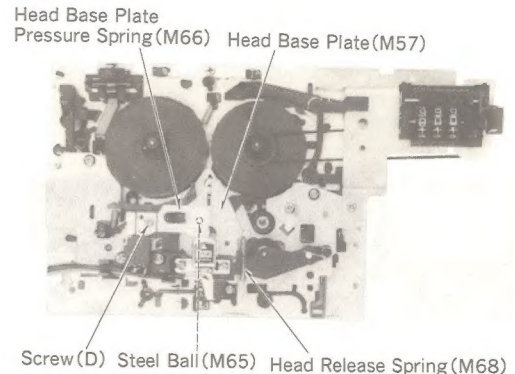


Fig. 11

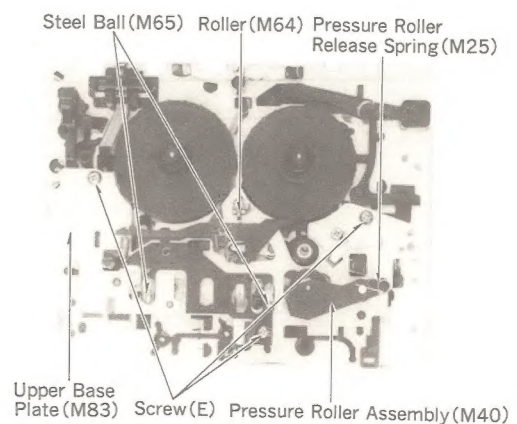


Fig. 12

MECHANISM SECTION

1. For repair, measurement or adjustment with the mechanism removed from the unit be sure to ground the lower base plate of the mechanism.
2. For grounding, connect a extension cord to the mechanism's lower base plate and the Lug terminal from main circuit board.
3. Without grounding, the amplifier does not operate properly.

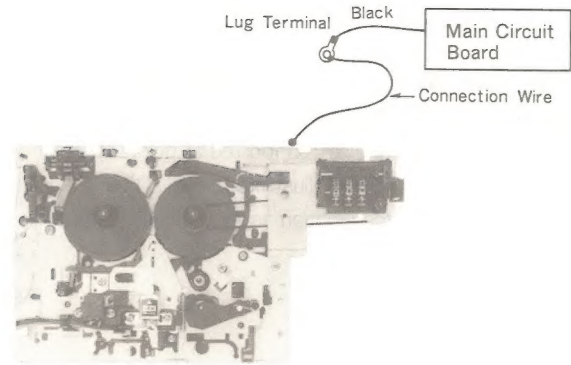


Fig. 13

ASSEMBLY INSTRUCTIONS

• Belt mounting

Check that each belt is free of damage or grease on the surface, after that, set the belt as illustrated, and mount it on the lower base plate (M84) after that, set the takeup belt (M78) on the fast forward connection pulley assembly (M82).

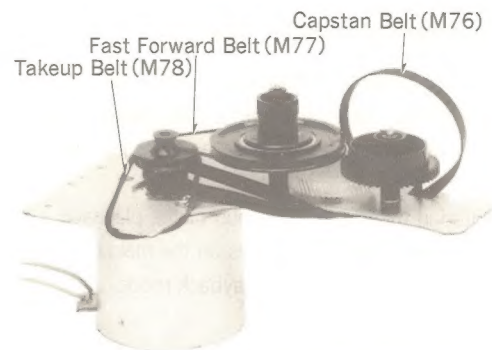


Fig. 14

• Positioning the takeup reel table assembly

When installing the takeup reel table assembly, be sure to mount the auto-stop friction hub (shown in fig. 16), as illustrated in fig. 15.

If the takeup reel table is positioned incorrectly at any place other than that shown in fig. 15, the auto-stop mechanism remains operative at all times.

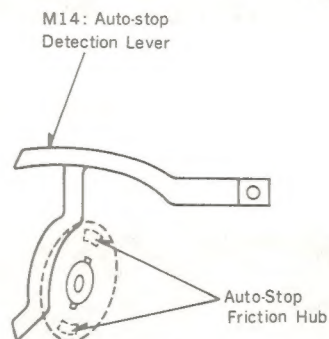


Fig. 15

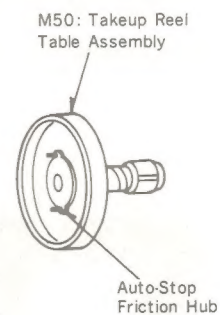


Fig. 16

• How to install the flywheel retainer

1. Insert the thrust retainer into the hole (A) of the flywheel retainer as shown in fig. 17.
2. Hold the thrust retainer with the thumb as shown in fig. 18.

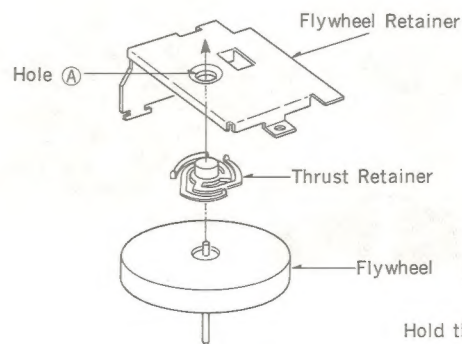


Fig. 17

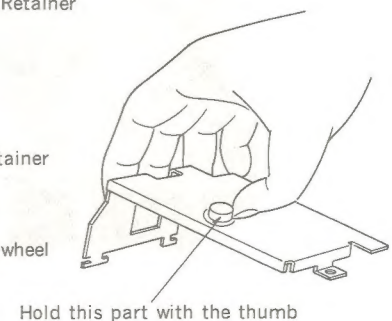


Fig. 18

3. Engage the parts ⑥ and ⑦ of the flywheel retainer with the lower base plate as shown in fig. 19.
4. Shift down the flywheel retainer, supported at points ⑧, in the direction of the arrow as illustrated. (fig. 20)
5. Attach the screw (A) in the position as shown in fig. 9.

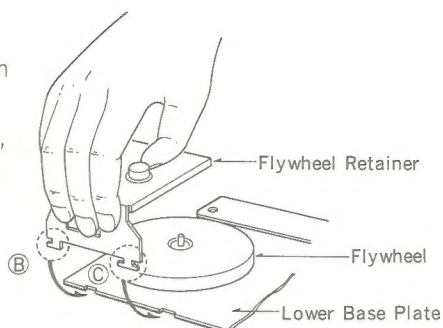


Fig. 19

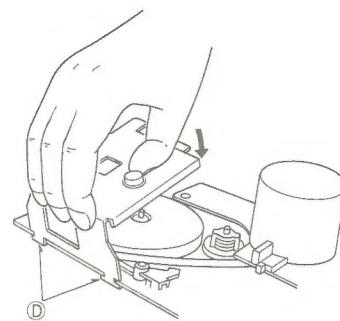


Fig. 20

• Mounting the operation button assembly

Before mounting the operation button assembly on the mechanism body, be sure to lift the main control lever in the direction of the arrow using a screwdriver, as shown in fig. 21, until it locks in place.

If it is not mounted in this manner, the hub of the playback button assembly during playback catches on the main control lever, making it impossible to release playback mode.

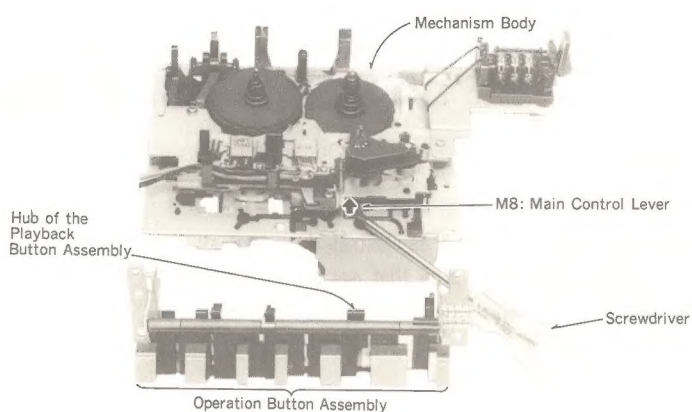


Fig. 21

ADJUSTMENT PARTS LOCATION

Tape Speed Adjustment VR.

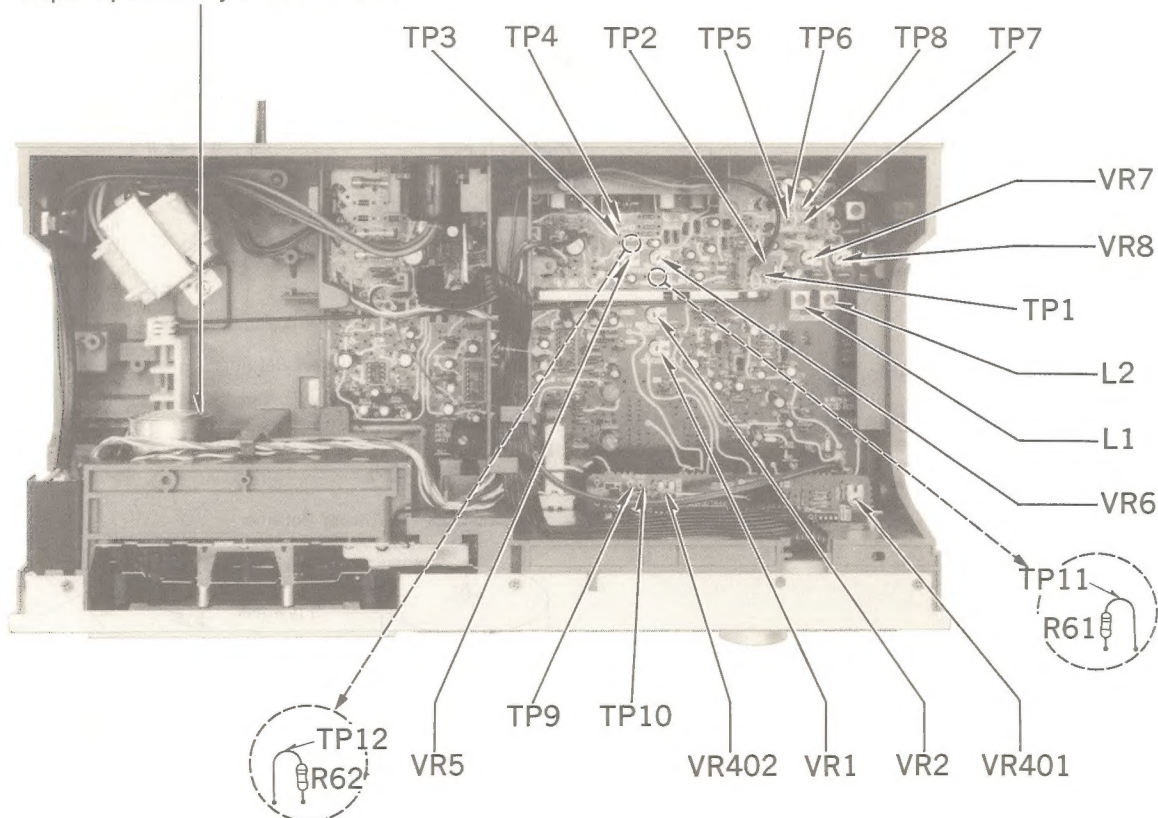
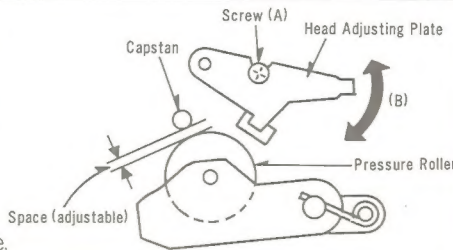
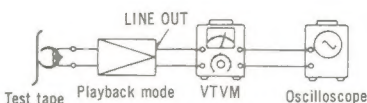
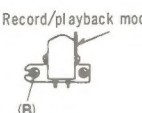

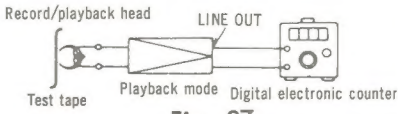


Fig. 22

MEASUREMENT AND ADJUSTMENT METHODS

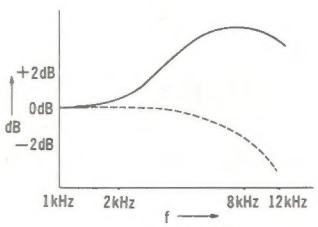
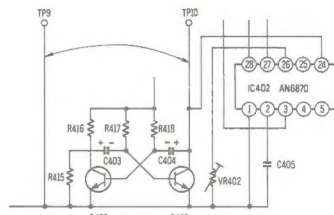



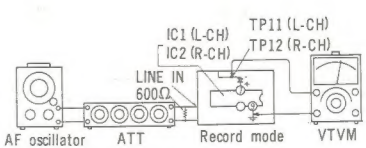
NOTES: Keep good condition, set lever switches and controls in the following positions, unless otherwise specified.

- Make sure heads are clean.
- Make sure capstan and pressure roller are clean.
- Judgeable room temperature: $20 \pm 5^{\circ}\text{C}$ ($68 \pm 9^{\circ}\text{F}$)
- Dolby NR switch: OUT
- Tape selector: Normal position
- Input selector: Line in
- Input level controls: Maximum

ITEM	MEASUREMENT & ADJUSTMENT
<p>A Head position adjustment</p> <p>Condition:</p> <ul style="list-style-type: none"> * Playback and pause mode 	<p>(The head adjusting plate is provided to adjust the tape touch of the head in cue or review mode.)</p> <ol style="list-style-type: none"> 1. Press the playback button and pause button. 2. Measure the space between the pinch roller and the capstan. <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>Standard value: $0.5 \pm 0.3 \text{ mm}$</p> </div> <ol style="list-style-type: none"> 3. If the measured value is not within the standard value, untighten screw (A), and slide the head adjusting plate in the direction of arrow (B) for adjustment.  <p style="text-align: center;">Fig. 23</p>
<p>B Head azimuth adjustment</p> <p>Condition:</p> <ul style="list-style-type: none"> * Playback mode <p>Equipment:</p> <ul style="list-style-type: none"> * VTVM * Oscilloscope * Test tape (azimuth) ... QZZCFM * Test tape (tape path viewer) 	<p>Record/playback head azimuth adjustment</p> <ol style="list-style-type: none"> 1. Test equipment connection is shown in fig. 24. 2. Playback azimuth tape (QZZCFM 8kHz). 3. Adjust record/playback head angle adjustment screw (B) in fig. 25 so that output level at LINE OUT becomes maximum. 4. Measure both channels, and adjust levels for equal output. 5. After adjustment lock head adjustment screw with lacquer.  <p style="text-align: center;">Fig. 24</p> <p>Erase head azimuth adjustment</p> <ol style="list-style-type: none"> 1. Test equipment connection is the same above but use the tape path viewer (QZZCRD) instead of test tape (QZZCFM). 2. Playback this tape. 3. Adjust screw (C) shown in fig. 26 so that the tape may not get curled or malformed by tape guide of the erase head. 4. After adjustment, lock head adjust screw with lacquer. <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Fig. 25</p> </div> <div style="text-align: center;">  <p>Fig. 26</p> </div> </div>
<p>C Tape speed</p> <p>Condition:</p> <ul style="list-style-type: none"> * Playback mode <p>Equipment:</p> <ul style="list-style-type: none"> * Digital electronic counter or frequency counter * Test tape ... QZZCWAT 	<p>Tape speed accuracy</p> <ol style="list-style-type: none"> 1. Test equipment connection is shown in fig. 27. 2. Playback test tape (QZZCWAT 3,000Hz), and supply playback signal to frequency counter. 3. Measure this frequency. 4. On the basis of 3,000Hz, determine value by following formula: $\text{Tape speed accuracy} = \frac{f - 3,000}{3,000} \times 100 (\%) \quad \text{where, } f = \text{measured value}$ <ol style="list-style-type: none"> 5. Take measurement at middle section of tape. <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>Standard value: $\pm 1.5\%$</p> </div> <p>Adjustment method</p> <ol style="list-style-type: none"> 1. Playback the test tape (middle). 2. Adjust so that frequency becomes 3,000Hz. 3. Tape speed adjustment VR shown in fig. 22.  <p style="text-align: center;">Fig. 27</p>

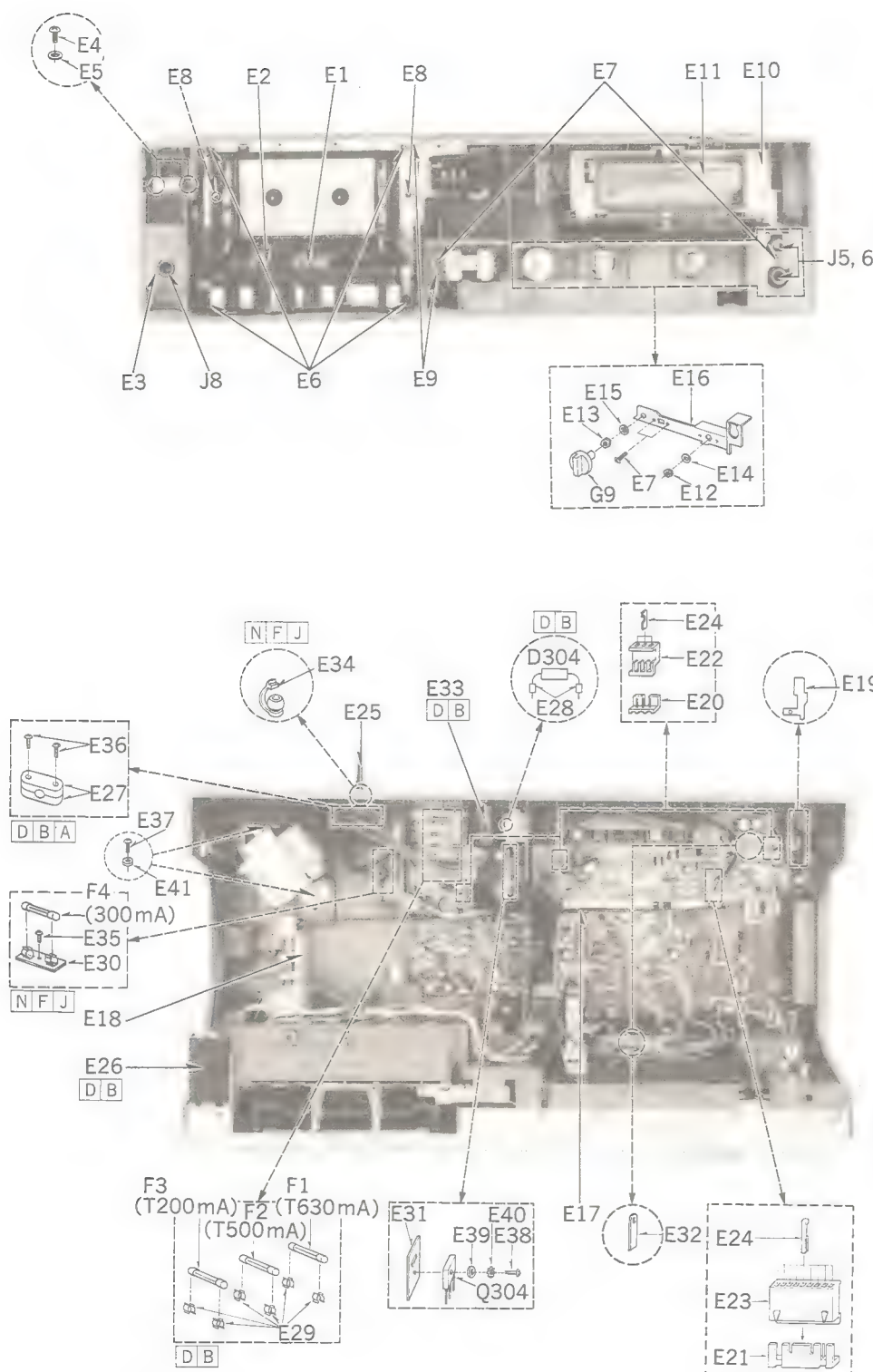
ITEM	MEASUREMENT & ADJUSTMENT
	<p>Tape speed fluctuation</p> <p>Make measurements in same manner as above (beginning, middle and end of tape), and determine the difference between maximum and minimum values and calculate as follows:</p> $\text{Tape speed fluctuation} = \frac{f_1 - f_2}{3,000} \times 100 (\%) \quad f_1 = \text{maximum value, } f_2 = \text{minimum value}$ <p style="border: 1px solid black; padding: 2px; display: inline-block;">Standard value: Less than 1%</p> <p>Note: Please use non metal type screwdriver when you adjust tape speed accuracy on this unit.</p>
<p>D Playback frequency response</p> <p>Condition:</p> <ul style="list-style-type: none"> * Playback mode * Tape selector ... Normal position <p>Equipment:</p> <ul style="list-style-type: none"> * VTVM * Oscilloscope * Test tape ... QZZCFM 	<ol style="list-style-type: none"> 1. Test equipment connection is shown in fig. 24. 2. Place UNIT into playback mode. 3. Playback the frequency response test tape (QZZCFM). 4. Measure output level at 315 Hz, 12.5 kHz, 8 kHz, 4 kHz, 1 kHz, 250 Hz, 125 Hz and 63 Hz, and compare each output level with the standard frequency 315 Hz, at LINE OUT. 5. Make measurement for both channels. 6. Make sure that the measured value is within the range specified in the frequency response chart. <p style="text-align: center;">Playback frequency response chart</p> <p style="text-align: center;">Fig. 28</p>
<p>E Playback gain</p> <p>Condition:</p> <ul style="list-style-type: none"> * Playback mode * Tape selector ... Normal position <p>Equipment:</p> <ul style="list-style-type: none"> * VTVM * Oscilloscope * Test tape ... QZZCFM 	<ol style="list-style-type: none"> 1. Test equipment connection is shown in fig. 24. 2. Playback standard recording level portion on test tape (QZZCFM 315 Hz), and using VTVM measure the output level at LINE OUT. 3. Make measurement for both channels. <p style="border: 1px solid black; padding: 2px; display: inline-block;">Standard value: around 0.39 V</p> <p>Adjustment</p> <ol style="list-style-type: none"> 1. If measured value is not within standard, adjust VR1 (L-CH), VR2 (R-CH) (See fig. 22 on page 5). 2. After adjustment, check "Playback frequency response" again.
<p>F Bias leakage</p> <p>Condition:</p> <ul style="list-style-type: none"> * Record mode * Input level controls ... MAX * Tape selector ... Metal position <p>Equipment:</p> <ul style="list-style-type: none"> * VTVM * Oscilloscope 	<ol style="list-style-type: none"> 1. Test equipment connection is shown in fig. 29. 2. Place UNIT into record mode. 3. Adjust trap coil L1 (L-CH), L2 (R-CH) so that measured value on VTVM becomes minimum. 4. Take adjustment for both channels. <p style="text-align: center;">Fig. 29</p>
<p>G Erase current</p> <p>Condition:</p> <ul style="list-style-type: none"> * Record mode * Tape selector ... Metal position <p>Equipment:</p> <ul style="list-style-type: none"> * VTVM * Oscilloscope 	<ol style="list-style-type: none"> 1. Test equipment connection is shown in fig. 30. 2. Press the record and pause buttons. 3. Set the tape selector to metal position. 4. Read voltage on VTVM and calculate erase current by following formula: $\text{Erase current (A)} = \frac{\text{Voltage across both ends of R301}}{1 (\Omega)}$ <p style="border: 1px solid black; padding: 2px; display: inline-block;">Standard value: 155 ± 15 mA (Metal position)</p> <ol style="list-style-type: none"> 5. If measured value is not within standard, adjust as follows. <p>Adjustment</p> <ol style="list-style-type: none"> 1. Open the point (A) and short the point (B) on the main circuit board in the wiring connection diagram (See page 10). <p style="text-align: center;">Fig. 30</p>

ITEM	MEASUREMENT & ADJUSTMENT
	<ol style="list-style-type: none"> Make measurement for erase current. Make sure that the measured value is within the erase current of 140 mA to 170 mA. If it is beyond the value, carry out the following adjustments: <ul style="list-style-type: none"> If the erase current is less than 140 mA, short the point (A). If the erase current is more than 170 mA, open the points (A) and (B).
<p>H Bias current</p> <p>Condition:</p> <ul style="list-style-type: none"> Record mode Tape selector <ul style="list-style-type: none"> Normal position Fe-Cr position CrO₂ position Metal position <p>Equipment:</p> <ul style="list-style-type: none"> VTVM Oscilloscope 	<ol style="list-style-type: none"> Test equipment connection is shown in fig. 31. Place UNIT into record mode, and tape selector to normal position. Read voltage on VTVM and calculate bias current by following formula: $\text{Bias current (A)} = \frac{\text{Value read on VTVM (V)}}{10 (\Omega)}$ <div data-bbox="1037 414 1404 616" data-label="Diagram"> </div> <p style="text-align: center;">Fig. 31</p> <p style="text-align: center;">Standard value: around 410μA (Normal position)</p> <ol style="list-style-type: none"> If measured value is not within standard, adjust VR7 (L-CH) and VR8 (R-CH) (See fig. 22 on page 5). Set the tape selector to each position. Make sure that the measured value is within standard. <div data-bbox="518 795 1412 862" data-label="Text"> <p style="text-align: center;">Standard value: around 440μA (Fe-Cr position), around 545μA (CrO₂ position), around 800μA (Metal position)</p> </div>
<p>I Overall gain</p> <p>Condition:</p> <ul style="list-style-type: none"> Record/playback mode Input level controls...MAX Standard input level; <ul style="list-style-type: none"> MIC -72 ± 4 dB LINE IN ... -24 ± 4 dB <p>Equipment:</p> <ul style="list-style-type: none"> VTVM AF oscillator ATT Oscilloscope Resistor (600Ω) Test tape (reference blank tape) ... QZZCRA for Normal 	<ol style="list-style-type: none"> Test equipment connection is shown in fig. 32. Place UNIT into record mode, and tape selector to normal position. Supply 1 kHz signal (-24 dB) from AF oscillator, through ATT to LINE IN. Adjust ATT until monitor level at LINE OUT becomes 0.39 V. Using test tape, make recording. Playback recorded tape, and make sure the value at LINE OUT on VTVM becomes 0.39 V (-7 dB). If measured value is not 0.39 V, adjust VR5 (L-CH), VR6 (R-CH) (See fig. 22 on page 5). Repeat from step (2). <div data-bbox="1037 907 1428 1142" data-label="Diagram"> </div> <p style="text-align: center;">Fig. 32</p>
<p>J Overall frequency response</p> <p>Condition:</p> <ul style="list-style-type: none"> Record/playback mode Tape selector <ul style="list-style-type: none"> Normal position Fe-Cr position CrO₂ position Metal position Input level controls...MAX <p>Equipment:</p> <ul style="list-style-type: none"> VTVM AF oscillator ATT Oscilloscope Resistor (600Ω) Test tape (reference blank tape) ... QZZCRA for Normal ... QZZCRY for Fe-Cr ... QZZCRX for CrO₂ ... QZZCRZ for Metal 	<p>Note:</p> <p>Before measuring and adjusting, make sure of the playback frequency response (For the method of measurement, please refer to the playback frequency response).</p> <ol style="list-style-type: none"> Test equipment connection is shown in fig. 32. Place the normal test tape (QZZCRA) in the cassette holder. Place UNIT into record mode, and tape selector to normal position. Supply 1 kHz signal from AF oscillator through ATT to LINE IN. Adjust ATT so that input level is -20 dB below standard recording level (standard recording level = 0 VU). At this time, LINE OUT level indicates 0.039 V. Record each frequency 1 kHz, 50 Hz, 200 Hz, 4 kHz, 8 kHz and 10 kHz (12 kHz for Fe-Cr, CrO₂ and metal). Playback and express in dB the difference between playback output level of each frequency based on playback output level of 1 kHz. <div data-bbox="877 1288 1428 1881" data-label="Figure"> <p style="text-align: center;">Fig. 33</p> <p style="text-align: center;">Overall frequency response chart (Normal)</p> <p style="text-align: center;">Fig. 34</p> <p style="text-align: center;">Overall frequency response chart (Fe-Cr, CrO₂, Metal)</p> </div>

ITEM	MEASUREMENT & ADJUSTMENT
	<p>9. Make sure that the measured value is within the range specified in the overall frequency response chart (Shown in fig. 33).</p> <p>10. Change test tape to Fe-Cr (QZZCRY), CrO₂ (QZZCRX) and metal (QZZCRZ).</p> <p>11. Set the tape selector to each position.</p> <p>12. Measure in the same manner from step (3) to step (8).</p> <p>13. Make sure that the measured value is within the range specified in the overall frequency response chart for Fe-Cr, CrO₂ and metal tape (Shown in fig. 34).</p> <p>Adjustment—Using bias current</p> <p>1. When the frequency response between the middle and high frequency range becomes higher than the standard value, as shown by the solid line in fig. 35 increase, refer to bias current adjustment.</p> <p>2. When it becomes lower, as shown by dotted line, refer to bias current adjustment.</p> <p>Note: For the method of bias current measurement, refer to "Bias current adjustment" on page 8.</p>  <p style="text-align: center;">Fig. 35</p>
<p>K Fluorescent meter</p> <p>Condition:</p> <ul style="list-style-type: none"> * Record mode * Input level controls... MAX * Tape selector ... Normal position <p>Equipment:</p> <ul style="list-style-type: none"> * VTVM * AF oscillator * ATT * Resistor (600Ω) 	<p>1. Test equipment connection is shown in fig. 32.</p> <p>2. As shown in fig. 36, connecting the base of Q402 and ground stops the oscillation of the astable multivibrator comprising Q402 and Q403.</p> <p>3. Supply 1 kHz signal (−24 dB) to the LINE IN then press the record button.</p> <p>4. Adjust the ATT so that the output level at LINE OUT becomes 0.39 V (The input level at this condition is termed the standard input level).</p> <p>5. Adjustment at "−20 dB":</p> <p>A. Adjust the ATT so that the input level is −20 dB below standard recording level.</p> <p>B. Adjust VR401 so that the −20 dB segment lights up in the -20 ± 0.8 dB range (L-CH only) (See fig. 37).</p> <p>6. Adjustment at "0 dB":</p> <p>A. Adjust the ATT so that the output level at LINE OUT becomes 0.39 V. (The input level at this condition is termed the standard input level.)</p> <p>B. Adjust VR402 so that the +1 dB segment lights up in the 0 ± 0.2 dB range of the standard input level (See fig. 38).</p> <p>7. Repeat twice between steps (5) and (6) above.</p> <p>8. Adjust ATT and check that all segments lights up when an input signal level is increased to 10 dB higher than the standard input level (See fig. 39).</p>  <p style="text-align: center;">Fig. 36</p>  <p style="text-align: center;">Fig. 37</p>  <p style="text-align: center;">Fig. 38</p>  <p style="text-align: center;">Fig. 39</p>
<p>L Dolby NR circuit</p> <p>Condition:</p> <ul style="list-style-type: none"> * Record mode * Dolby NR switch... IN/OUT * Input level controls... MAX <p>Equipment:</p> <ul style="list-style-type: none"> * VTVM * AF oscillator * ATT * Oscilloscope * Resistor (600Ω) 	<p>1. Test equipment connection is shown in fig. 40.</p> <p>2. Place UNIT into record mode, set the Dolby NR switch to OUT position and supply to LINE IN to obtain −34.5 dB at TP11 (L-CH), TP12 (R-CH) (frequency 5 kHz).</p> <p>3. Confirm that the value at IN position is $8 (\pm 2.5)$ dB greater than the value at OUT position of Dolby NR switch.</p>  <p style="text-align: center;">Fig. 40</p>

ELECTRICAL PARTS LOCATION

NOTE: Δ indicates that only parts specified by the manufacturer be used for safety.

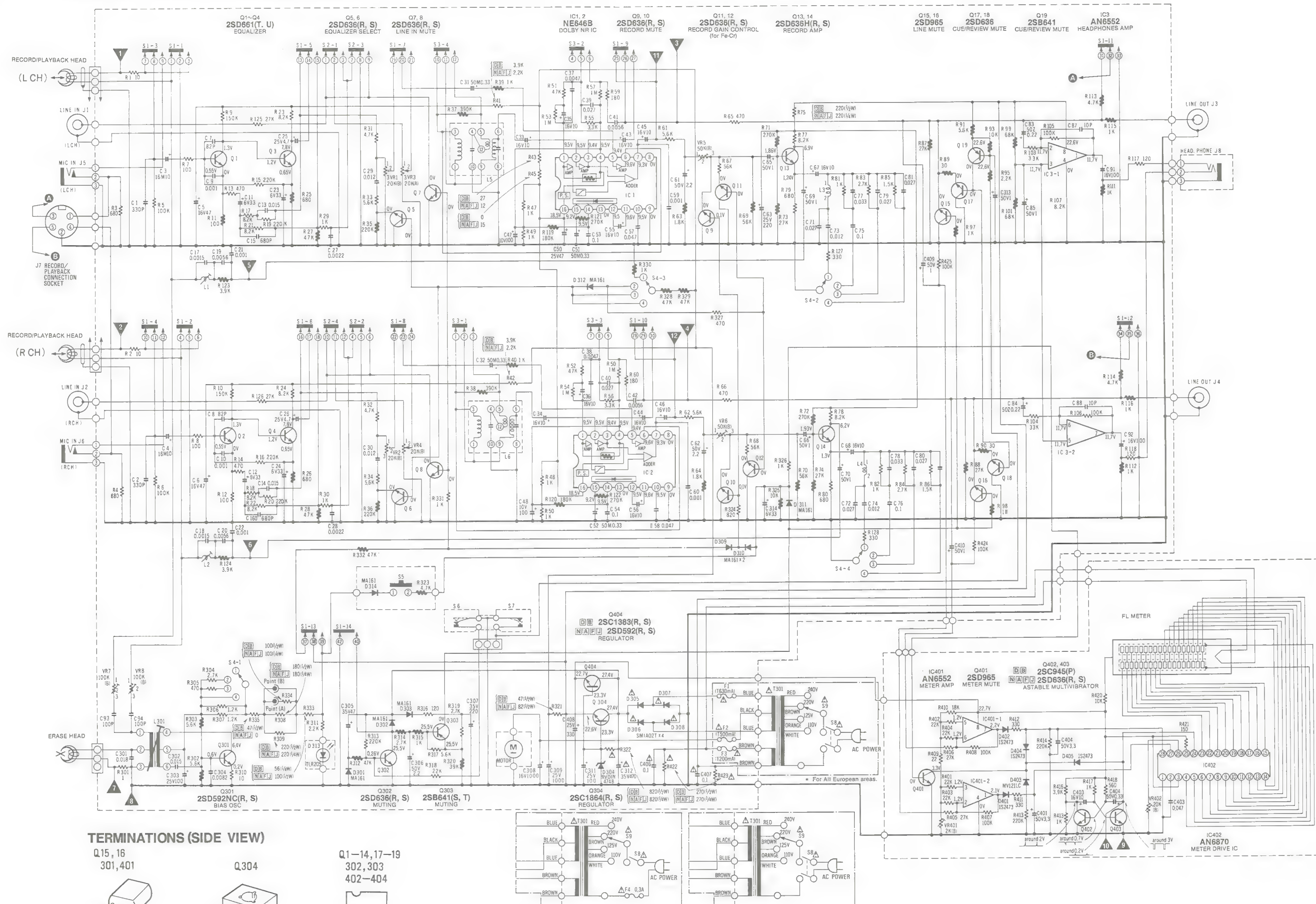


Ref. No.	Part No.	Part Name & Description
ELECTRICAL PARTS		
E1	QWY4122Z	Record/Playback Head
E2	QWY2138Z	Erase Head
E3	QNQ1070	Nut 12 ϕ
E4	XSN3+8S	Screw $\oplus 3 \times 8$
E5	XWA3B	Washer
E6	XTN3+10B	Tapping Screw $\oplus 3 \times 10$
E7	XTN3+8B	Tapping Screw $\oplus 3 \times 8$
E8	XTN26+6B	Tapping Screw $\oplus 2.6 \times 6$
E9	QJT0015	Lug Terminal
E10	QKJ0406	FL Meter Holder
E11	QSIFL001F	FL Meter
E12	QNQ1039	Nut 9 ϕ
E13	QNQ1004	Nut 8 ϕ
E14	QWQ1133	Spring Washer 9 ϕ
E15	QWQ2002	Spring Washer 8 ϕ
E16	QMA3956	Volume Angle
E17	QBS1130	Recording Wire
E18	QML3664	Recording Lever
E19	QJC0034	Earth Plate
E20	QJP1921TN	3 Pin Post
E21	QJP1922TN	6 Pin Post
E22	QJS1921TN	3 Pin Socket
E23	QJS1922TN	6 Pin Socket
E24	QJT1054	Contact
E25	Δ QFC1204M	AC Power Cord
*For all European areas except United Kingdom.		
	Δ QFC1205M	"
*For United Kingdom.		
	Δ QFC1203M	"
*For Asia, Latin America, Middle East, Africa areas and PX.		
	Δ QFC1208M	"
*For Australia.		
E26	Δ QKJ0407	Insulation Plate
*For all European areas.		
E27	Δ QTD1164	Cord Clamper
*For all European areas and Australia.		
E28	Δ QZE0003	Porcelain Tube
*For all European areas.		
E29	Δ QTF1054	Fuse Holder
*For all European areas.		
E30	Δ QTF1049	"
*For Asia, Latin America, Middle East, Africa areas and PX.		
E31	QTH1118	Heat Sink
E32	QJT1041	Check Pin
E33	Δ QTW00026	Rotary Switch Cover
*For all European areas.		
E34	Δ QTD1129	Cord Bushing
*For Asia, Latin America, Middle East, Africa areas and PX.		
E35	Δ XTN3+10B	Tapping Screw $\oplus 3 \times 10$
*For Asia, Latin America, Middle East, Africa areas and PX.		
E36	Δ XTN3+16B	Tapping Screw $\oplus 3 \times 16$
*For all European areas and Australia.		
E37	XSN4+10	Screw $\oplus 4 \times 10$
E38	XSN26+8	Screw $\oplus 2.6 \times 8$
E39	XWA26B	Washer
E40	XWG26	"
E41	XWA4B	"

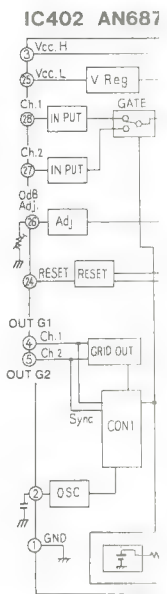
NOTES:

- Δ For all European areas except United Kingdom.
- Δ For United Kingdom.
- Δ For Asia, Latin America, Middle East and Africa areas.
- Δ For Australia.
- Δ For Asian PX.
- Δ For European PX.

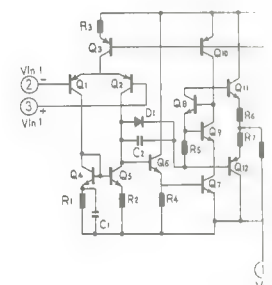
SCHEMATIC DIAGRAM



EQUIVA



IC3, 401 AN6552

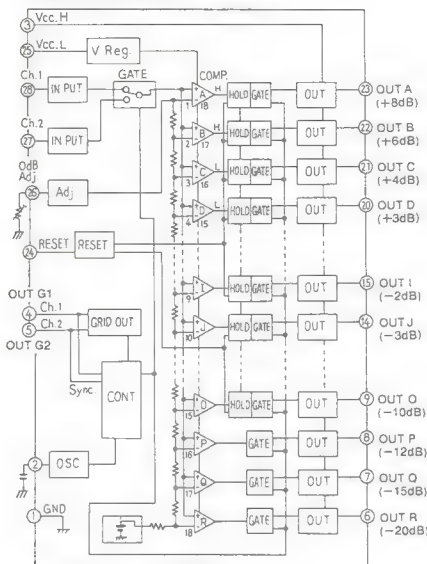


NOTES:

- S1-1 – S1-14 Record/playba
- S2-1 – S2-4 Input select sw
- S3-1 – S3-4 Dolby NR IN/c
- S4-1 – S4-4 Tape select sw
- S5 Record muting
- S6 Playback muti
- S7 Cue and review
- S8 Power ON/OFF
- S9 AC voltage sel
- VR1, 2 Playback gain
- VR3, 4 Input level con
- VR5, 6 Record gain ac
- VR7, 8 Bias current ac
- VR401 FL meter adjus
- VR402 FL meter adjus
- L1, 2 Bias leakage a
- Resistance are in ohms (Ω), 1/4 wat
- K = 1,000 Ω .
- Resistors indicated thickly show prin
- Capacity are in microfarads (μF) unl
- P = Pico-farads.
- The mark (▼) shows test point. e.g.
- All voltage values shown in circuitry
- volume control at minimum position.
- For measurement, use VTVM.
- Δ indicates that only parts specifi
- \square For all European areas except
- \square For United Kingdom.
- \square For Asia, Latin America, Midd
- \square For Australia.
- \square For Asian PX.
- \square For European PX.

[illegible]

IC402 AN6870

[illegible]

- S1-1 ~ S1-14 Record/playback select switch (shown in playback position).
- S2-1 ~ S2-4 Input select switch (shown in LINE position).
- S3-1 ~ S3-4 Dolby NR IN/OUT select switch (shown in OUT position).
- S4-1 ~ S4-4 Tape select switch (1...Normal, 2...Fe-Cr, 3...CrO₂, 4...Metal).
- S5 Record muting switch (shown in OFF position).
- S6 Playback muting switch (close at playback or record mode).
- S7 Cue and review muting switch (close at cue/review mode).
- S8 Power ON/OFF switch (shown in OFF position).
- S9 AC voltage select switch.
- VR1, 2 Playback gain adjustment VR.
- VR3, 4 Input level control.
- VR5, 6 Record gain adjustment VR.
- VR7, 8 Bias current adjustment VR.
- VR401 FL meter adjustment VR (for -20 dB indication).
- VR402 FL meter adjustment VR (for 0 dB indication).
- L1, 2 Bias leakage adjustment coil.

Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
 K=1,000 Ω .

Resistors indicated thickly show printed type resistor.

- Capacity are in microfarads (μ F) unless specified otherwise.

P=Pico-farads.

- The mark (▼) shows test point. e.g. ▼=Test point 1.
- All voltage values shown in circuitry are under no signal condition and record mode with volume control at minimum position.

For measurement, use VTVM.

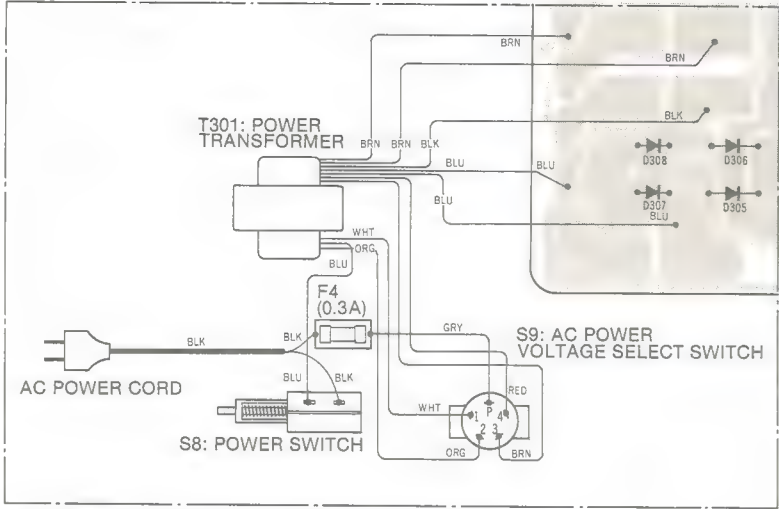
- Δ indicates that only parts specified by the manufacturer used for safety.
- \square For all European areas except United Kingdom.
- B For United Kingdom.
- N For Asia, Latin America, Middle East and Africa areas.
- A For Australia.
- P For Asian PX.
- J For European PX.

Playback S/N ratio Test tape... QZZCFM	Greater than 45 dB (without NAB filter)
Overall distortion Test tape ...QZZCRA for Normal ...QZZCRX for CrO ₂ ...QZZCRY for Fe-Cr ...QZZCRZ for Metal	Less than 4%
Overall S/N ratio Test tape... QZZCRA	Greater than 43 dB (without NAB filter)

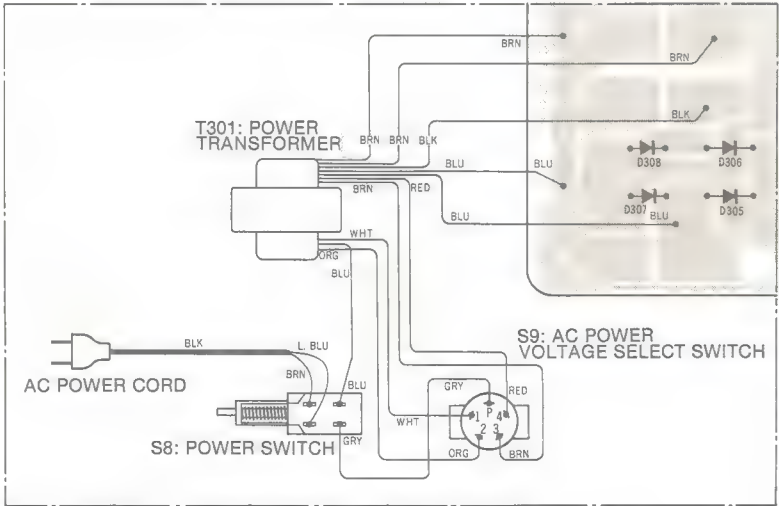
Ref. No.	Part No.	Ref. No.	Part No.
C47, 48	ECEA1AS101	TRANSISTORS	
C50	ECEA1ES470	Q1, 2, 3, 4	2SD661
C51, 52	ECEA50MR33R	Q5, 6, 7, 8, 9	10, 11, 12
C53, 54	ECFDD104KXY		2SD636
C55, 56	ECEA1HS100		2SD636
C57, 58	ECFDD473KXY	Q13, 14	2SD965
C59, 60	ECKD1H102KB	Q15, 16	2SD965
C61, 62	ECEA2AS2R2	Q17, 18	2SD636
C63	ECEA2ES221	Q19	2SB641
		Q301	2SD592NCS
		Q302	2SD636
C65, 66	ECEA2AS010	Q303	2SB641
C67, 68	ECEA1HS100	Q304	2SC1846
C69, 70	ECEA2AS010		
C71, 72	ECQM1H273JZ	Q401	2SD965
C73, 74	ECFDD123KXY	Q402, 403	2SC945
C75, 76	ECQM1H104KZ		
C77, 78	ECFDD333KXY		
C79, 80, 81, 82		*For all European areas.	
			2SD636
C83, 84	ECFDD273KXY		
C85	ECEA50ZR22	*For Asia, Latin America, Middle East, Africa areas, Australia and PX.	
	ECEA2AS010		
C87, 88	ECCD1H100KC	Q404	2SC1383
C91, 92	ECEA1ES101		
C93, 94	ECCD1H101K		
C301	ECQP1183JZ	*For all European areas.	
C302	ECFDD153KXY		2SD592NCS
C303	ECEA1ES101	*For Asia, Latin America, Middle East, Africa areas, Australia and PX.	
C304	ECFDD822KXY		
C305	ECEA1HS470	DIODES	
C306	ECEA2AS2R2	D301, 302, 303	MA161
C307	ECEA1VS221	D304	RVD1N4748
		D305, 306, 307, 308	SM112
C308	ECEA1CS102	D309, 310, 311, 312	MA161
C309	ECEA1VS102		
C310	ECFDD103KXY	D313	TLR205
C311	ECEA1ES101	D314, 401, 402	MA161
C312	ECEA1ES101		
C313	ECEA2AS010	D403	MV121
C314	ECEA1CS330	D404, 405	MA161
C401, 402	ECEA2AS3R3	INTEGRATED CIRCUITS	
C403	ECEA1HS100	IC1, 2	NE646B
C404	ECEA50ZR33	IC3, 401	AN6552
C405	ECFDD473KXY	IC402	AN6870
C406, 407			
C408	ECFDD104KXY		
C409, 410	ECEA1ES331		
	ECEA2AS010		

Ref. No.	Part No.	Part Name & Description
TRANSFORMER		
T301	QLPD45EL	Power Transformer
*For all European areas.		
	QLPN55EL	"
*For Asia, Latin America, Middle East, Africa areas, Australia and PX.		
COILS		
L1, 2	QLQC0331	Bias Trap Coil
L3, 4	QLQX0332K	Peaking Coil
L5, 6	QLM927	MPX Filter
L301	QLB0198K	Bias Oscillation Coil
SWITCHES		
S1	QSSE203	Slide Switch (Record/Playback Selector)
S2	QSW4209T	Push Switch (LINE IN/MIC Selector)
S3	QSW4209T	Push Switch (Dolby ON/OFF)
S4	QSR4403A	Rotary Switch (Tape Selector)
S5	QSW2103A	Push Switch (Record Muting ON/OFF)
S6	QSB0251I	Leaf Switch (Playback Muting Switch)
S7	QSB0251I	Leaf Switch (Fast Wind Muting Switch)
S8	QSW2214	Push Switch (Power ON/OFF)
*For all European areas and Australia.		
	QSW1115AZ	"
*For Asia, Latin America, Middle East, Africa areas and PX.		
S9	QSR1407H	Rotary Switch (AC Power Voltage Selector)
FUSES		
F1	XBAQ0008	Fuse (T 630mA)
*For all European areas.		
F2	XBAQ050026	Fuse (T 500mA)
*For all European areas.		
F3	XBAQ0013	Fuse (T 200mA)
*For all European areas.		
F4	XBA2E03NR5	Fuse (300mA)
*For Asia, Latin America, Middle East, Africa areas and PX.		
JACKS		
J1, 2, 3, 4, 7	QEJ5002S	Line IN/OUT and Record/Playback Connection Socket Jack Assembly
J5, 6	QJA0257H	Microphone Jack
J8	QJA0249C	Headphones Jack

WIRING CONNECTION DIAGRAM AND CIRCUIT BOARD







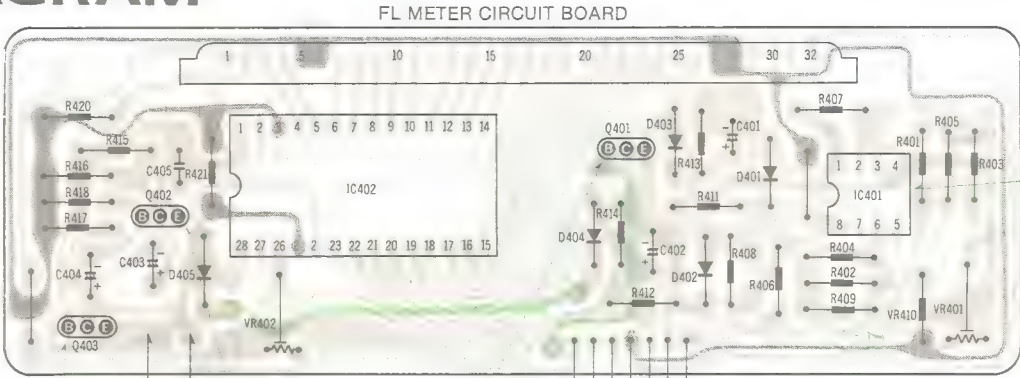
* For Asia, Latin America, Middle East and Africa areas.
* For PX.



* For Australia

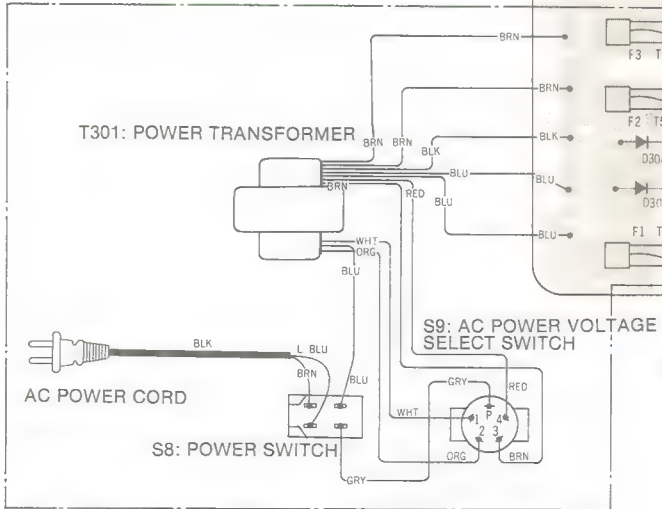
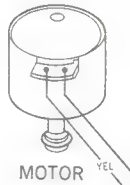
NOTES:

- The circuit shown in  on the conductor is +B (bias) circuit.
- The circuit shown in  on the conductor indicates printed circuit, which is included printed type resistors.
- The circuit shown in  on the conductor indicates printed circuit on the back side of the printed circuit board.
- Values indicated in  are DC voltage between the ground and electrical parts.
- The voltage indicates are measured during record mode.



Q403	2SC945P	Q402	2SC945P	Q401	2SD965
NAFJ	2SD636(R, S)	NAFJ	2SD636(R, S)	NAFJ	2SD636(R, S)
C	around 3V	C	around 1V	C	around 1V
B	around 0.2V	B	around 0.7V	B	around 0.7V
E	0V	E	0V	E	0V

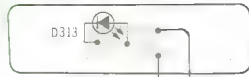
HEADPHONES JACK CIRCUIT BOARD



*For All European areas.

IC401 AN6552			
1	2.1V	5	1.2V
2	1.2V	6	1.2V
3	1.2V	7	1.2V
4	0V	8	1.2V

LED CIRCUIT BOARD



RECORD MUTE



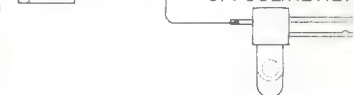
IC1, 2 NE646B			
1	9.5V	9	0V
2	9.5V	10	9.5V
3	9.4V	11	9.6V
4	9.5V	12	9.5V
5	9.4V	13	0V
6	9.6V	14	9.5V
7	9.3V	15	9.5V
8	9.3V	16	9.5V



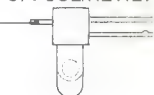
LUG TERMINAL

Q302	2SD636(R, S)
C	25.5V
B	25.5V
E	0V

S6: PLAYBACK MUTIN

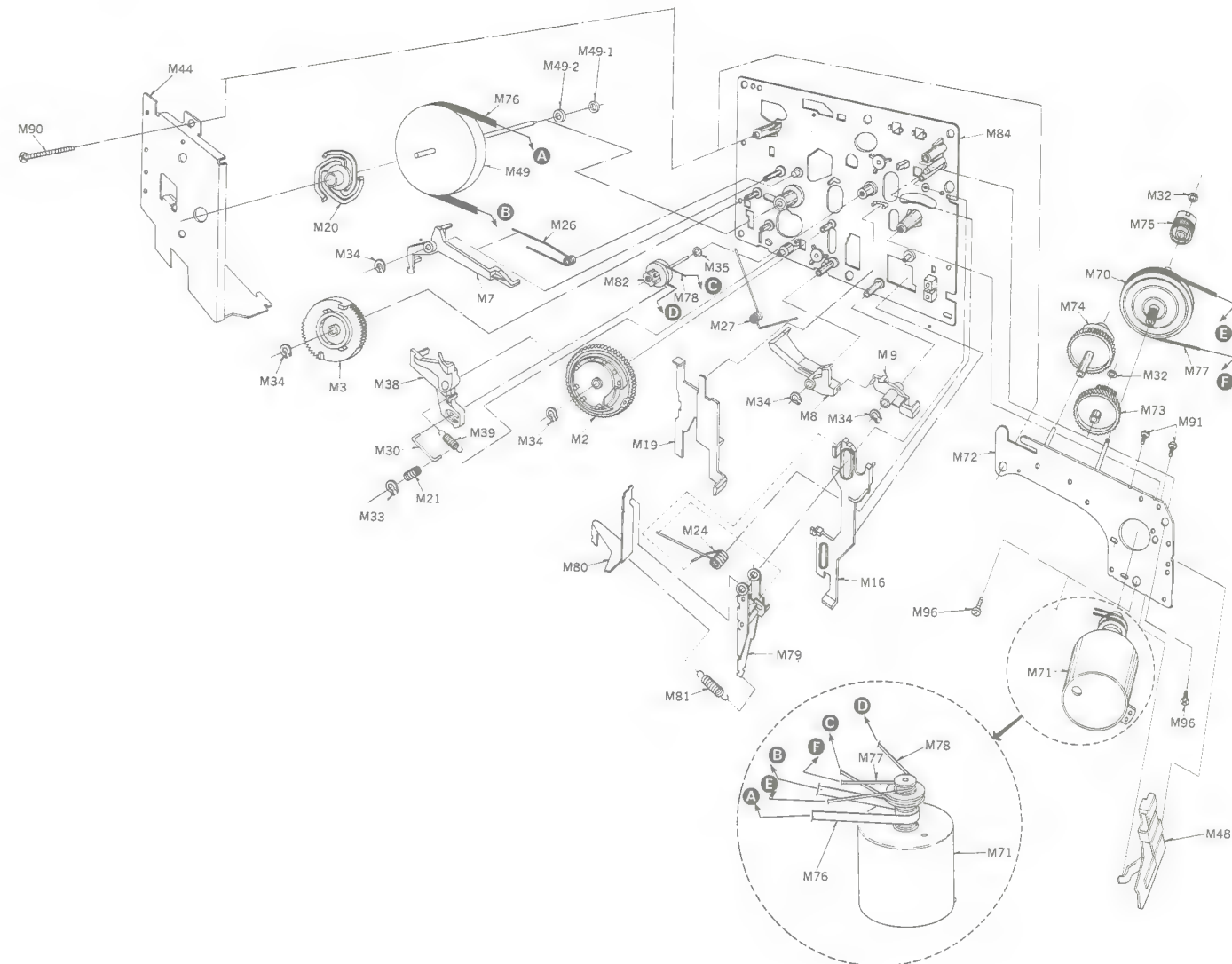
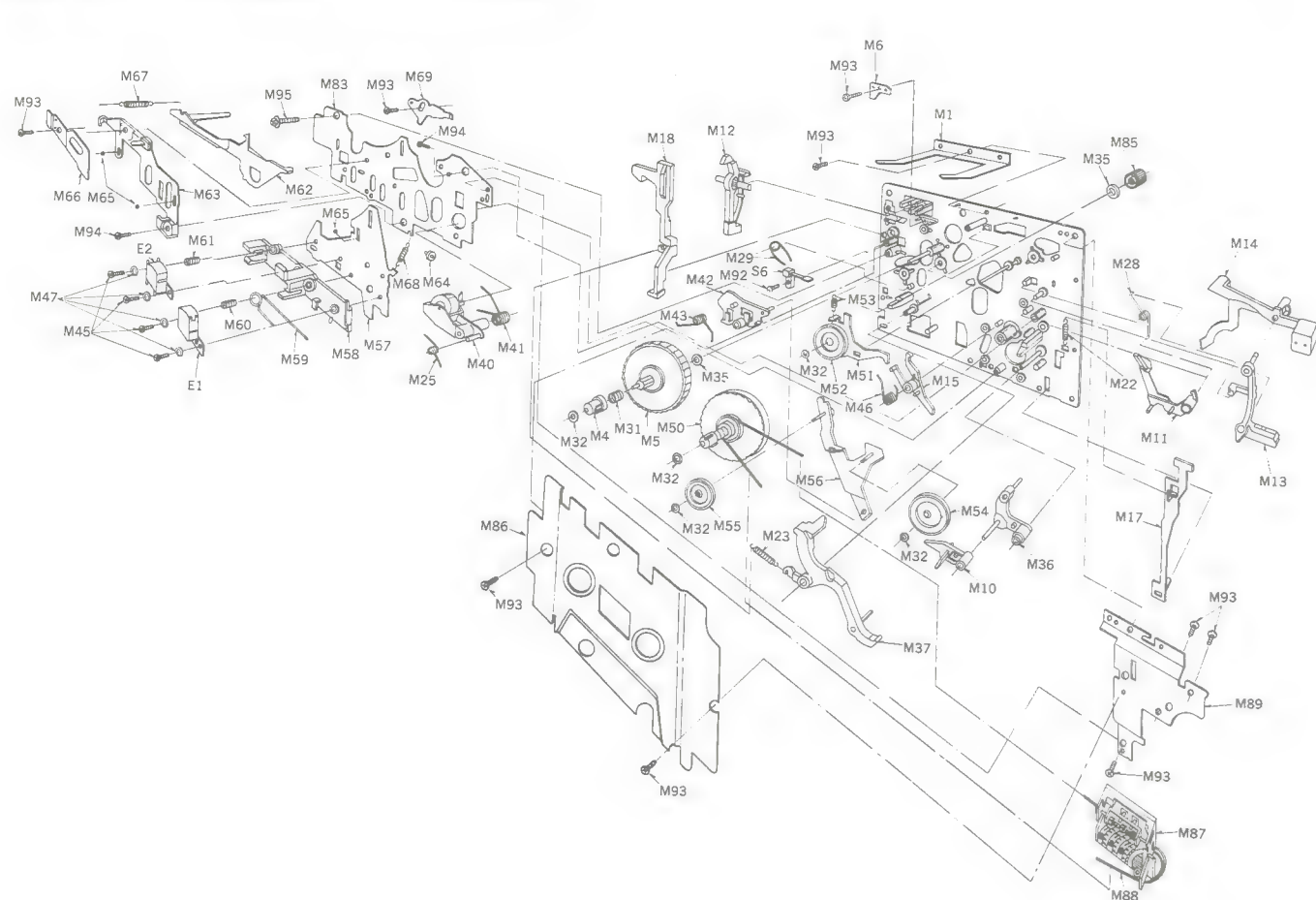


S7: CUE/REVIEW





EXPLODED VIEWS



Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
MECHANICAL PARTS								
M1	QBP1874	Cassette Pressure Spring	M33	XUB4FT	Stop Ring 4φ	M65	QDK1017	Steel Ball 2φ
M2	QDG1201	Main Gear	M34	QBW2083	Snap Ring 3φ	M66	QBP1873	Head Base Plate Pressure Spring
M3	QDG1202	Sub Gear	M35	QBW2012	Poly Washer	M67	QBT1597	Brake Arm Spring
M4	QMB1336	Supply Reel Table Hub	M36	QXL1354	Sub Lever Assembly	M68	QBT1892	Head Release Spring
M5	QDR1139	Supply Reel Table	M37	QXL1355	Main Lever Assembly	M69	QMA3858	Head Adjustment Plate
M6	QMF2118	Fast Forward Arm Bracket	M38	QML3582	Pause Lock Lever	M70	QXG1047	Takeup Gear Assembly
M7	QML3581	Sub Control Lever	M39	QBT1896	Lever Release Spring	M71	QXU0170	Motor Assembly
M8	QML3583	Main Control Lever	M40	QXL1381	Pressure Roller Assembly	M72	QXK2286	Sub Chassis Assembly
M9	QML3584	Record Operation Lever	M41	QBN1743	Pressure Roller Spring	M73	QDG1199	Auto-Stop Gear
M10	QML3586	Head Base Plate Lift Lever	M42	QML3588	Fast Forward Lever	M74	QDG1200	Cam Gear
M11	QML3594	Auto-Stop Release Arm	M43	QBN1748	Fast Forward Spring	M75	QDP1823	Connection Pulley
M12	QML3603	Erase Safety Lever	M44	QMA3861	Flywheel Retainer	M76	QDB0281	Capstan Belt
M13	QML3604	Auto-Stop Driving Lever	M45	XSN2+10	Screw ⌀2×10	M77	QDB0273	Fast Forward Belt
M14	QML3605	Auto-Stop Detection Lever	M46	QBN1741	Change Lever Spring	M78	QDB0274	Takeup Belt
M15	QML3592	Change Lever	M47	XWA2	Washer 2φ	M79	QXL1360	Record/Playback Selection Arm Assembly
M16	QMR1820	Record Rod	M48	QMZ1254	Cord Clamp	M80	QML3580	Record/Playback Selection Lever
M17	QMR1821	Auto-Stop Connection Rod	M49	QXF0164	Flywheel Assembly	M81	QBT1895	Record/Playback Selection Lever Spring
M18	QMR1822	Eject Rod	M49-1	QBW2049	Poly Washer	M82	QXP0607	Fast Forward Connection Pulley Assembly
M19	QMR1824	Control Rod	M49-2	QBW2026	Snap Ring	M83	QMK1838	Upper Base Plate
M20	QMZ1239	Flywheel Thrust Retainer	M50	QXD1143	Takeup Reel Table Assembly	M84	QXK2276	Lower Base Plate
M21	QBC1357	Lock Pin Pressure Spring	M51	QXL1382	Idler Lever Assembly	M85	QDP1828	Fast Forward Pulley
M22	QBT1682	Auto-Stop Connection Rod Spring	M52	QX10111	Takeup Idler Assembly	M86	QXH0327	Chassis Cover Assembly
M23	QBT1894	Main Lever Spring	M53	QBT1893	Takeup Idler Spring	M87	QXA1060	Tape Counter
M24	QBN1739	Selection Lever Spring	M54	QX10113	Fast Forward Idler Assembly	M88	QDB0240	Counter Belt
M25	QBN1742	Pressure Roller Release Spring	M55	QX10112	Reel Idler Assembly	M89	QMA3860	Counter Angle
M26	QBN1744	Sub Gear Spring	M56	QXL1383	Fast Forward Arm Assembly	M90	XTN3+24B	Tapping Screw ⌀3×24
M27	QBN1745	Main Gear Spring	M57	QMK1840	Head Base Plate	M91	XSN26+3	Screw ⌀2.6×3
M28	QBN1746	Auto-Stop Lever Spring	M58	QMZ1241	Head Spacer	M92	XTN2+6B	Tapping Screw ⌀2×6
M29	QBN1747	Connection Spring	M59	QBN1740	Head Pressure Spring	M93	XTN26+6B	Tapping Screw ⌀2.6×6
M30	QBS1128	Lock Pin	M60	QBC1278	Head Spring	M94	XTN26+10B	Tapping Screw ⌀2.6×10
M31	QBC1372	Reel Table Spring	M61	QBCA0008	"	M95	XTN26+12B	Tapping Screw ⌀2.6×12
M32	QBW2008	Poly Washer 2φ	M62	QML3591	Brake Arm	M96	XTN3+10B	Tapping Screw ⌀3×10
			M63	QMZ1240	Sub Head Base Plate			
			M64	QMN2550	Roller			

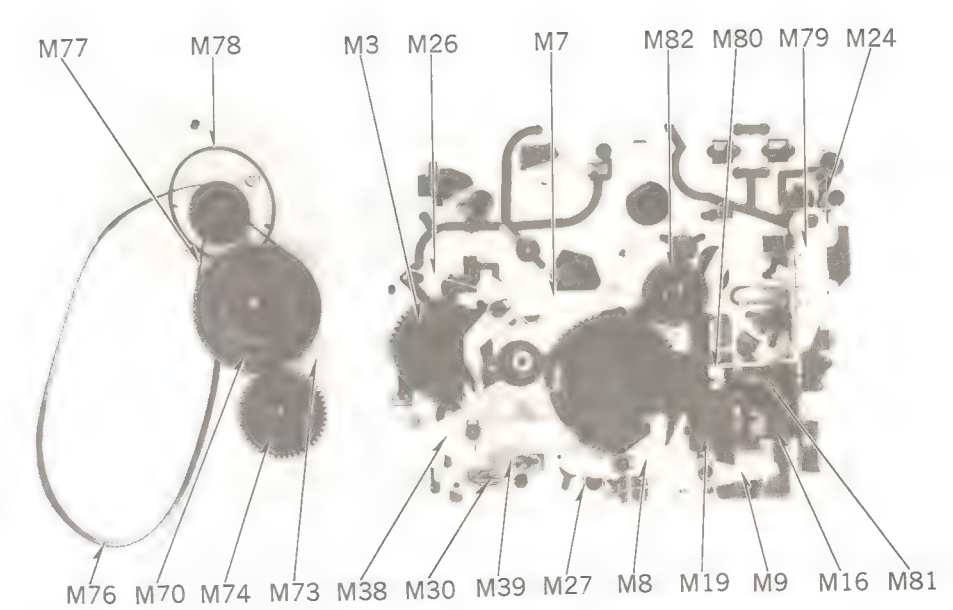
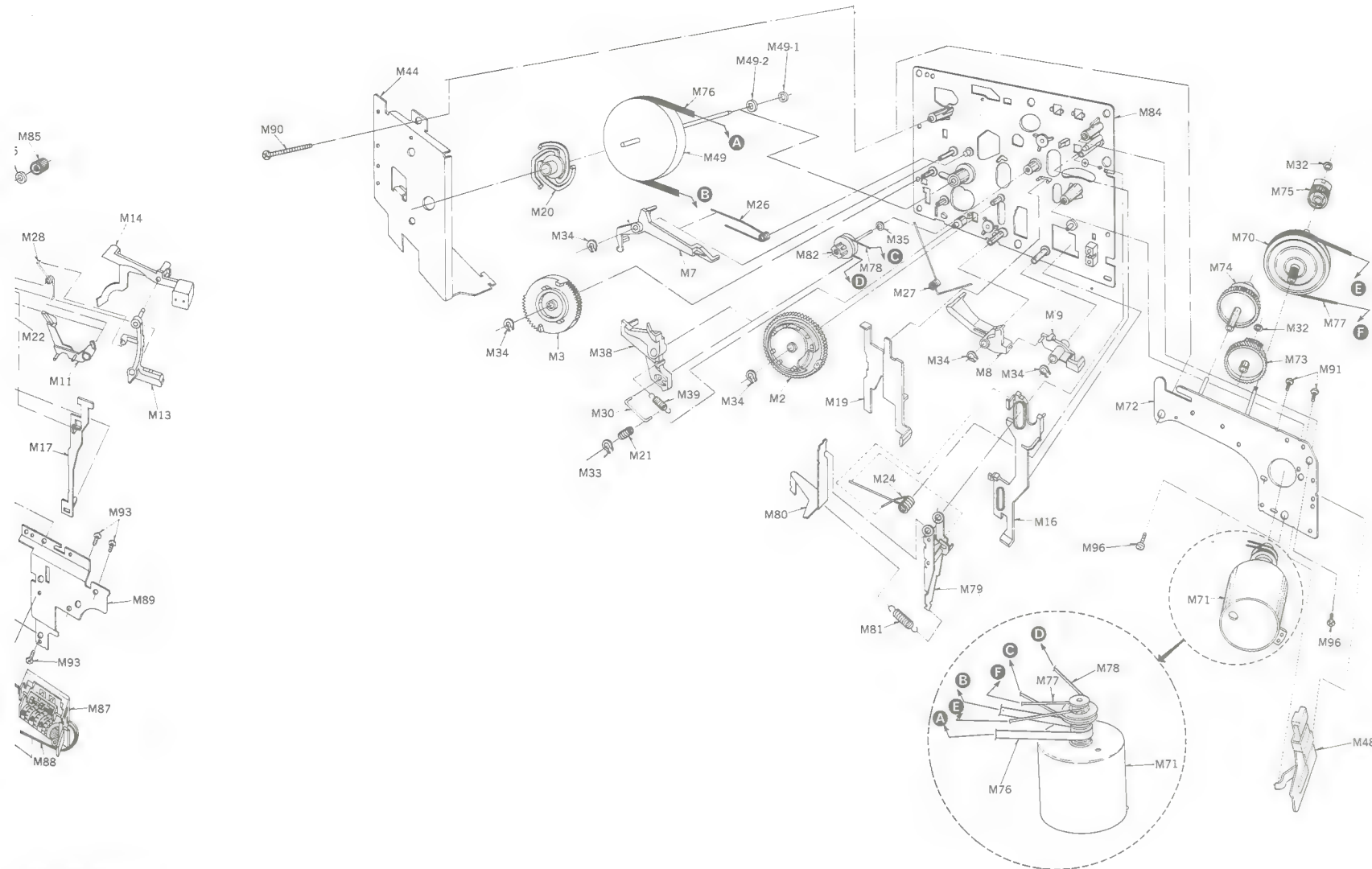
SPECIFICATIONS

Pressure of pressure roller	350±50 g
Takeup tension * Use cassette torque meter ... QZZSRKCT	45 ⁺¹⁵ ₋₁₀ g-cm
Wow and flutter; (JIS) * Use test tape ... QZZCWAT	Less than 0.06% (WRMS)

NOTE: Δ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.	Part No.	Part Name & Description
ACCESSORIES		
A1	RP023A	Connection Cord
A2	Δ QFTC30S011TZ	Demonstration Tape
*For Asia, Latin America, Middle East, Africa areas and Australia.		
A3	Δ QJP0603S	AC Plug Adaptor
*For Asia, Latin America, Middle East, Africa areas and Australia.		
A4	QQT2807	Instruction Book
*For all European areas except United Kingdom.		
	QQT2819	"
*For United Kingdom and Australia.		
	QQT2842	"
*For Asia, Latin America, Middle East and Africa areas.		
	QQT2843	"
*For PX.		
PACKINGS		
P1	QPN4008	Inside Carton
*For all European areas, Asia, Latin America, Middle East and Africa areas.		
	QPN4032	"
*For Australia.		
	QPN4014	"
*For PX.		
P2	QPA0558	Cushion-A
P3	QPA0559	Cushion-B
P4	XZB40X60A02	Poly Bag
P5	QPA0562	Spacer
*For Australia.		
P6	QPS0434	Pad
*For all European areas, Australia and PX.		
	QPG1994	"
*For Asia, Latin America, Middle East and Africa areas.		

MECHANICAL PARTS LOCATION



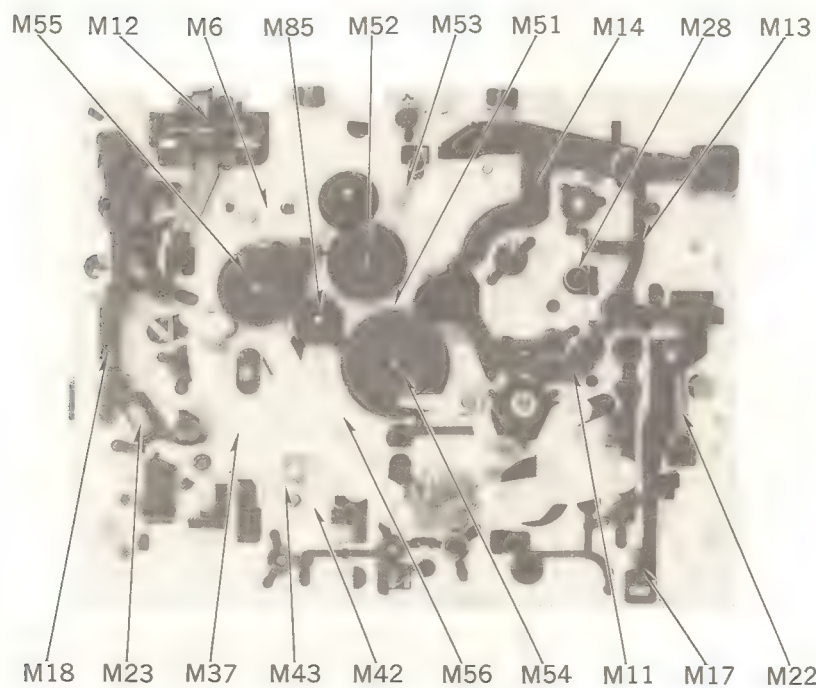
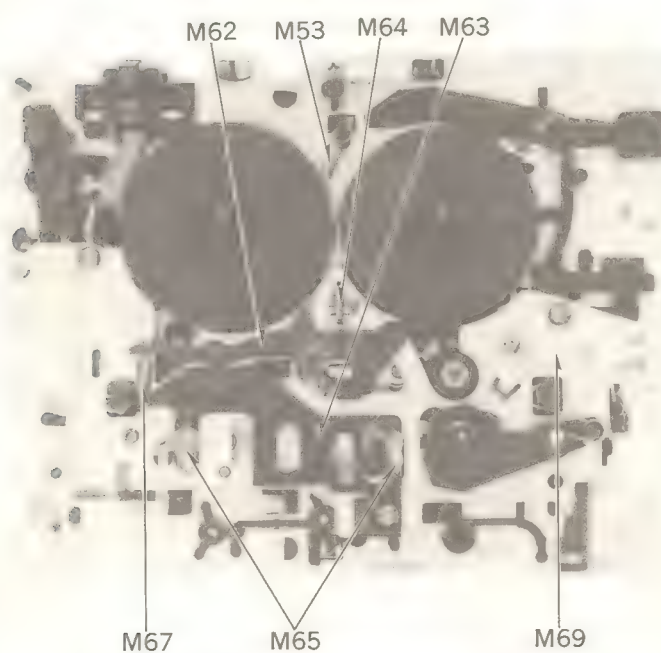
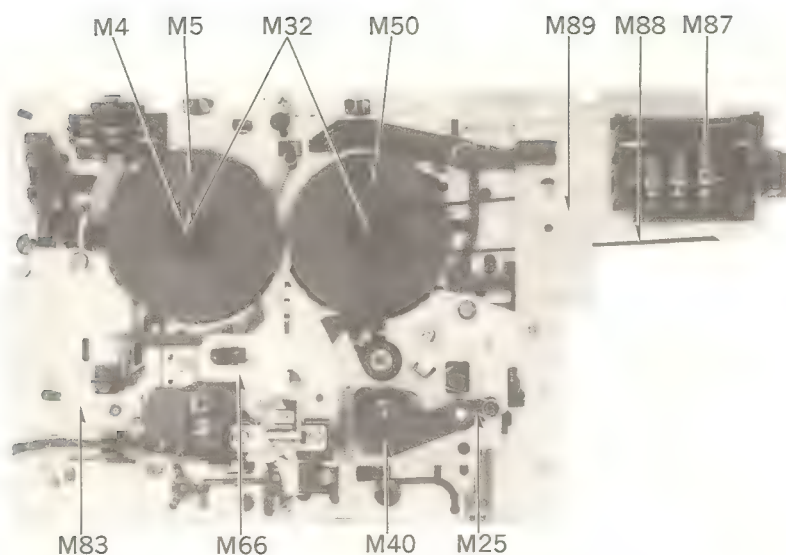
Part Name & Description	
al Ball 2φ	
id Base Plate Pressure Spring	
ke Arm Spring	
id Release Spring	
ad Adjustment Plate	
roup Gear Assembly	
tor Assembly	
Chassis Assembly	
to-Stop Gear	
m Gear	
nnexion Pulley	
pstan Belt	
st Forward Belt	
keup Belt	
cord/Playback Selection Arm	
sembly	
cord/Playback Selection Lever	
cord/Playback Selection Lever	
tring	
st Forward Connection Pulley	
sembly	
per Base Plate	
wer Base Plate	
st Forward Pulley	
hassis Cover Assembly	
pe Counter	
unter Belt	
unter Angle	
apping Screw ③3×24	
crew ③2.6×3	
apping Screw ③2×6	
apping Screw ③2.6×6	
apping Screw ③2.6×10	
apping Screw ③2.6×12	
apping Screw ③3×10	

SPECIFICATIONS

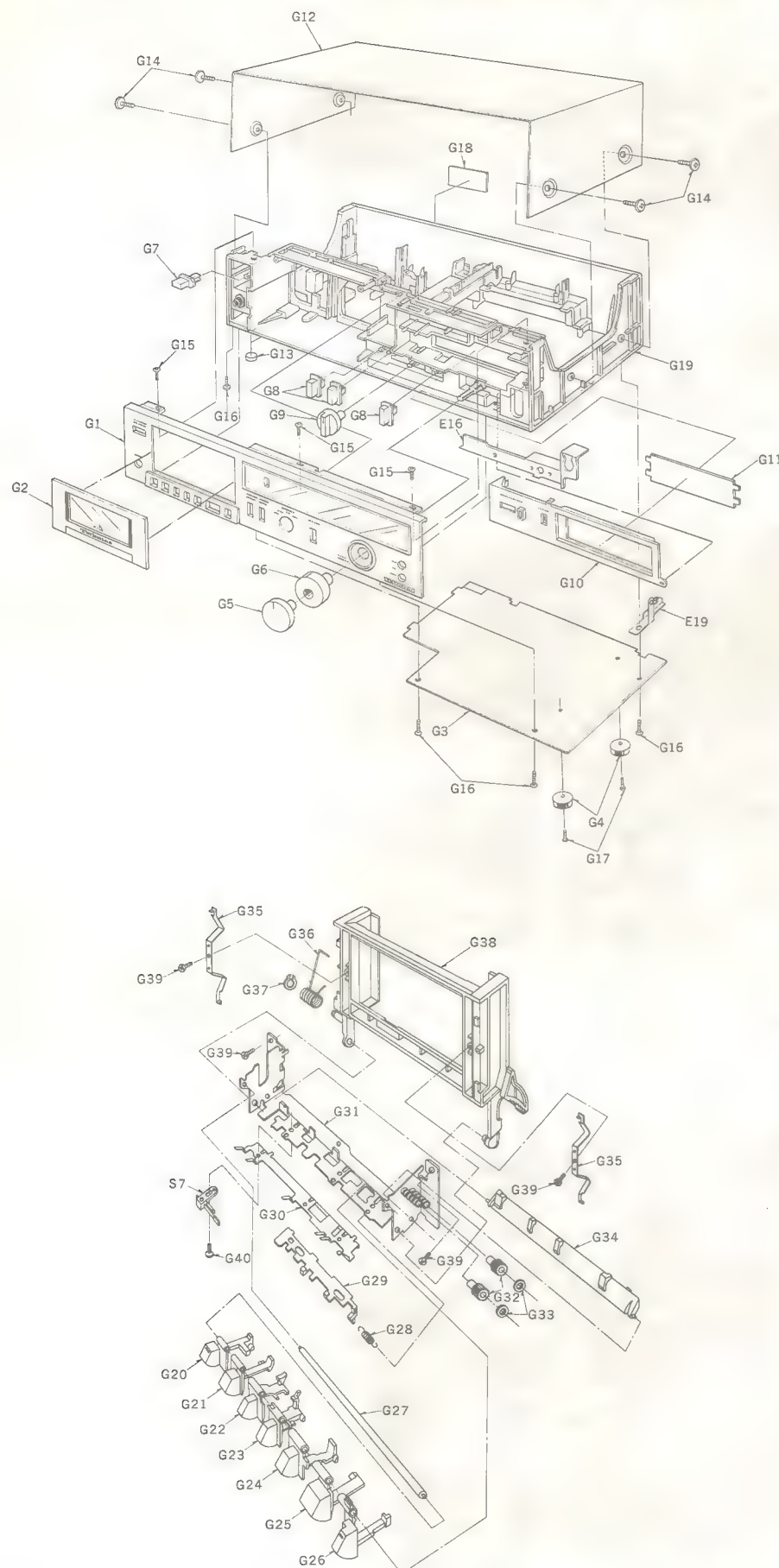
Pressure of pressure roller	350±50 g
Takeup tension * Use cassette torque meter ...QZZSRKCT	45 ⁺¹⁵ ₋₁₀ g-cm
Wow and flutter; (JIS) * Use test tape ...QZZCWAT	Less than 0.06% (WRMS)

NOTE: △ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.	Part No.	Part Name & Description
ACCESSORIES		
A1	RP023A	Connection Cord
A2	QFTC30S011TZ	Demonstration Tape
*For Asia, Latin America, Middle East, Africa areas and Australia.		
A3	QJP0603S	AC Plug Adaptor
*For Asia, Latin America, Middle East, Africa areas and Australia.		
A4	QQT2807	Instruction Book
*For all European areas except United Kingdom.		
	QQT2819	"
*For United Kingdom and Australia.		
	QQT2842	"
*For Asia, Latin America, Middle East and Africa areas.		
	QQT2843	"
*For PX.		
PACKINGS		
P1	QPN4008	Inside Carton
*For all European areas, Asia, Latin America, Middle East and Africa areas.		
	QPN4032	"
*For Australia.		
	QPN4014	"
*For PX.		
P2	QPA0558	Cushion-A
P3	QPA0559	Cushion-B
P4	XZB40X60A02	Poly Bag
P5	QPA0562	Spacer
*For Australia.		
P6	QPS0434	Pad
*For all European areas, Australia and PX.		
	QPG1994	"
*For Asia, Latin America, Middle East and Africa areas.		



CABINET PARTS



Ref. No.	Part No.	Part Name & Description
CABINET PARTS		
G1	QYP0950 "Silver Type" QYP0961 "Black Type"	Front Panel Assembly
G2	QYF0442 "Silver Type" QYF0450 "Black Type"	Cassette Lid Assembly
G3	QGC1189	Bottom Cover
G4	QKA1083	Rubber Foot
G5	QYT0586 "Silver Type"	Volume Knob-A Assembly
*For all European areas, Asia, Latin America, Middle East, Africa areas and Australia.		
	QYT0595	"
*For PX.		
	QYT0586K "Black Type"	"
G6	QYT0587 "Silver Type" QYT0587K "Black Type"	Volume Knob-B Assembly
G7	QG01728 "Silver Type" QG01728K "Black Type"	Push Button (Power ON/OFF)
G8	QG01727 "Silver Type" QG01727K "Black Type"	Push Button (Input Select, Tape Select, Rec Mute)
G9	QGT1495 "Silver Type" QGT1495K "Black Type"	Tape Select Knob
G10	QKG3044 "Silver Type" QKG3044K "Black Type"	Meter Cover
G11	QGL1140	Meter Filter
G12	QGC1188 "Silver Type" QGC1188K "Black Type"	Case Cover
G13	QKA1081	Case Foot
G14	XTB4+10BFN "Silver Type" XTB4+10BFZ "Black Type"	Tapping Screw $\varnothing 4 \times 10$
G15	XTS3+10B	Tapping Screw $\varnothing 3 \times 10$
G16	XTN3+10B	"
G17	QH01299	Screw
G18	QGS2796	Main Name Plate
*For United Kingdom and Australia.		
	QGS2798	"
*For Asia, Latin America, Middle East and Africa areas.		
	QGS2799	"
*For PX.		
G19	QKM1419H "Silver Type" QKM1419K "Black Type"	Main Case
G20	QXL1363	Eject Button Assembly
G21	QXL1364	Record Button Assembly
G22	QXL1365	Rewind/Review Button Assembly
G23	QXL1366	Fast Forward/Cue Button Assembly
G24	QXL1367	Playback Button Assembly
G25	QXL1368	Stop Button Assembly
G26	QXL1369	Pause Button Assembly
G27	QMN2554	Operation Lever Shaft
G28	QBT1597	Obstruction Rod Spring
G29	QMR1823	Obstruction Rod
G30	QBP1875	Operation Lever Spring
G31	QXA1044	Operation Button Angle Assembly
G32	QDG1102	Holder Gear
G33	QBW2082	Snap Ring $\varnothing 4$
G34	QML3593	Lock Arm
G35	QBP1771	Holder Spring
G36	QBN1749	Eject Spring
G37	XUB5FT	Stop Ring $\varnothing 5$
G38	QKF6015K	Cassette Holder
G39	XTN26+6B	Tapping Screw $\varnothing 2.6 \times 6$
G40	XTN2+6B	Tapping Screw $\varnothing 2 \times 6$

RS-M14 FRANCAIS

MESURES ET REGLAGE

NOTA:

Pour garder l'appareil en bon état de marche, positionner les commutateurs à levier et les commandes dans les positions suivantes, sauf indication contraire.

- Vérifiez que les têtes soient propres.
- Vérifiez que le cabestan et le galet presseur soient propres.
- Température ambiante admissible: 20±5°C.
- Sélecteur de Dolby: OUT.
- Sélecteur de bande: position normal.
- Commutateur de test de crête: LINE.
- Commande de niveau: MAX.

SECTION	MESURES ET REGLAGES
A Réglage de la position de la tête Condition: * Le mode de lecture et pause	Il y a une plaque de réglage de la tête pour ajuster le contact de bande de la tête en mode de repérage avant ou arrière. 1. Appuyer sur le bouton de lecture (PLAY) et le bouton de pause. 2. Mesurer l'espace qui sépare le galet presseur du cabestan. Valeur standard: 0.5±0.3mm 3. Si la valeur mesurée se trouve hors tolérances, desserrer la vis A, et glisser la plaque de réglage de la tête dans la direction de la flèche B pour effectuer le réglage.
B Azimutage de tête Condition: * Position lecture Equipement: * Voltmètre électronique * Oscilloscope * Bande étalon (azimutage)...QZZCFM * Bande étalon (Fenêtre de passage de la bande avec miroir) ...QZZCRD	Réglage de la tête d'enregistrement/lecture 1. Branchez les appareils comme ci-dessous. (Voir Fig. 24). 2. Lisez la bande étalon d'azimutage (QZZCFM, 8kHz). 3. Réglez la vis d'orientation (B) Fig. 25, de la tête d'enregistrement/lecture pour obtenir le niveau maximal à la sortie LINE OUT. 4. Mesurez les deux canaux, et ajustez les niveaux à égalité de tension de sortie. 5. Après réglage, bloquez la vis par une goutte de vernis. Réglage de la tête d'effacement 1. Le branchement de l'équipement d'essai est pareil que ci-dessus mais utiliser le visionneur du chemin de bande (QZZCRD) au lieu de la bande d'essai (QZZCFM). 2. Ecouter cette bande. 3. Régler la vis (C) montrée à la Fig. 26, de sorte que la bande ne se vrille pas, ni soit déformée par les guides de la bande de la tête d'effacement. 4. Après réglage, bloquez la vis par une goutte de vernis.
C Vitesse de défilement Condition: * Position lecture Equipement: * Compteur électronique numérique ou fréquencemètre numérique * Bande étalon...QZZCWAT	Précision de la vitesse de défilement 1. Branchez les appareils comme ci-dessous. (Voir fig. 27). 2. Lisez la bande étalon (QZZCWAT, 3000Hz) et appliquez le signal de sortie au fréquencemètre. 3. Mesurez sa fréquence. 4. Sur la base de 3000Hz, déterminez la valeur à l'aide de la formule. $\text{Précision de vitesse} = \frac{f - 3000}{3000} \times 100(\%)$ avec f = valeur mesurée. 5. Effectuez la mesure sur la partie médiane de la bande. <div>Valeur normale: ±1.5%</div> Méthode de réglage 1. Lisez la bande étalon (milieu). 2,3. Ajustez la vis de réglage de vitesse VR indiquée fig. 22 pour que la fréquence devienne égale à 3000Hz. Fluctuations de vitesse de défilement Faites les mesures de la même façon que ci-dessus (au début, au milieu et en fin de bande) et déterminez la différence entre les valeurs maximale et minimale, puis calculez comme suit. $\text{Fluctuations de vitesse} = \frac{f_1 - f_2}{3000} \times 100(\%)$ f ₁ = valeur maximale f ₂ = valeur minimale <div>Valeur normale: moins de 1%</div> Nota: Utiliser un tournevis non métallique pour régler la vitesse de bande de cet appareil avec précision.

SECTION	MESURES ET REGLAGES
D Réponse en fréquence à la lecture Condition: * Position lecture * Sélecteur de bande ...position Normal Equipement: * Voltmètre électronique * Oscilloscope * Bande étalon...QZZCFM	1. Branchez les appareils de mesure comme pour "l'azimutage de tête", mais en utilisant la bande étalon (QZZCFM) au lieu de la bande étalon d'azimutage (Voir Fig. 24). 2. Placez l'appareil en position lecture. 3. Lisez la bande étalon de courbe de réponse (QZZCFM). 4. Mesurez les niveaux de sortie à 315Hz, 12.5kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz et 63Hz et comparez chaque niveau de sortie avec celui de la fréquence étalon de 315Hz, sur la borne LINE OUT. 5. Effectuez la mesure sur les deux canaux. 6. Vérifiez que les valeurs mesurées se situent à l'intérieur du gabarit de courbe de réponse. (Voir Fig. 28).
E Gain à la lecture Condition: * Position lecture * Sélecteur de bande ...position Normal Equipement: * Voltmètre électronique * Oscilloscope * Bande étalon...QZZCFM	1. Branchez les appareils comme ci-dessous. (Voir fig. 24). 2. Lisez la partie "niveau standard" de la bande étalon (QZZCFM, 315Hz) et mesurez le niveau de sortie, avec le voltmètre électronique, sur le jack LINE OUT. 3. Effectuez les mesures sur les deux canaux. <div>Valeur normale: Autour de 0.39V</div> Réglage 1. Si la valeur mesurée n'est pas correcte, réglez VR1 (canal gauche) et VR2 (droit) (Voir fig. 22). 2. Après réglage, vérifiez à nouveau la "réponse en fréquence à la lecture".
F Fuites de prémagnétisation Condition: * Position enregistrement * Sélecteur de bande ...position Metal * Commande de niveau ...MAX. Equipement: * Voltmètre électronique * Oscilloscope	1. Branchez les appareils comme ci-dessous (Voir Fig. 29). 2. Placez l'appareil en position enregistrement. 3. Réglez les bobines de la trappe L1 (canal gauche) et L2 (droit) pour que la mesure soit au minimum. 4. Effectuez ce réglage pour les deux canaux.
G Courant d'effacement Condition: * Position enregistrement * Sélecteur de bande ...position Metal Equipement: * Voltmètre électronique * Oscilloscope	1. Branchez les appareils comme ci-dessous. (Voir fig. 30). 2. Appuyez sur les boutons d'enregistrement et de pause. 3. Place le sélecteur de bande à la position "Metal". 4. Déterminez le courant d'effacement avec la formule suivante. $\text{Courant d'effacement (A)} = \frac{\text{Tension aux bornes de la résistance R301 (V)}}{1(\Omega)}$ <div>Valeur normale: 155±15mA (position Metal)</div> 5. Si la valeur mesurée ne correspond pas à la norme, réglez de la manière suivante. Réglage 1. Ouvrir le point (A) et court-circuiter le point (B) sur la plaquette de circuit principale dans le schéma de câblage. (Voir page 10). 2. Mesurer la valeur du courant d'effacement. 3. S'assurer que la valeur mesurée se trouve entre 145mA et 170mA. 4. Si elle se situe au-delà de la valeur, procéder aux réglages suivants. • Si le courant d'effacement est inférieur à 140mA, court-circuiter le point (A). • Si le courant d'effacement est supérieur à 170mA, ouvrir le point (A) et le point (B).

SECTION	MESURES ET REGLAGES
H Courant de prémagnétisation Condition: * Position enregistrement * Sélecteur de bande ...position Normal ...position Fe-Cr ...position CrO ₂ ...position Metal Equipement: * Voltmètre électronique * Oscilloscope	<ol style="list-style-type: none"> 1. Branchez les appareils selon la Fig. 31. 2. Placez l'appareil en position enregistrement, le sélecteur de bande sur "normal" (pour bande normale). 3. Lisez la tension sur le voltmètre électronique et calculez le courant de prémagnétisation selon la formule. $\text{Courant de prémagnétisation (A)} = \frac{\text{Tension lue sur voltm. élec. (V)}}{10(\Omega)}$ <div>Valeur normale: Autour de 410µA (position Normal)</div> 4. Réglez VR7 (canal gauche) et VR8 (canal droit) (voir emplacements des organes de réglage en Fig. 22). 5. Positionner le sélecteur de bande sur chaque position. 6. Vérifiez si la valeur mesurée correspond à la norme. <div>Autour de 440µA (position Fe-Cr) Valeur normale: Autour de 545µA (position CrO₂) Autour de 800µA (position Metal)</div>
I Gain global Condition: * Positions enregistrement/lecture * Commande de niveau LINE IN...MAX. * Niveaux d'entrée normaux MIC -72±4dB LINE IN -24±4dB Equipement: * Générateur AF * Voltmètre électronique * Atténuateur * Oscilloscope * Bande étalon vierge QZZCRA pour type de bande normale * Résistance (600Ω)	<ol style="list-style-type: none"> 1. Branchez les appareils comme sur la Fig. 32. 2. Placez l'appareil en position enregistrement, le sélecteur de bande sur position normale. 3. Appliquez un signal à 1 kHz (-24dB) du générateur AF, à travers l'atténuateur, à l'entrée LINE IN. 4. Réglez l'atténuateur pour que le niveau d'écoute simultanée sur LINE OUT soit de 0,39V (-7dB). 5. Faites un enregistrement avec la bande étalon (QZZCRA). 6. Lisez la bande ainsi enregistrée, et vérifiez que la valeur lue sur le voltmètre électronique branché sur LINE OUT est bien de 0,39V (-7dB). 7. Si la valeur mesurée est différente, réglez VR5 (canal gauche) et VR6 (droit) (voir page 22). 8. Recommencez à partir du palier (2).
J Courbe de réponse globale Condition: * Positions enregistrement/lecture * Commande de niveau ...MAX. * Sélecteur de bande ...position Normal ...position Fe-Cr ...position CrO ₂ ...position Metal Equipement: * Voltmètre électronique * Générateur AF * Atténuateur * Oscilloscope * Bande étalon vierge ...QZZCRA pour type normal ...QZZCRY pour Fe-Cr ...QZZCRX pour CrO ₂ ...QZZCRZ pour Metal * Résistance (600Ω)	<p>Nota: Avant de mesurer et régler, vérifiez que la courbe de réponse en lecture est correct (pour la méthode de mesure, reportez-vous au paragraphe considéré).</p> <ol style="list-style-type: none"> 1. Branchez les appareils de mesure comme sur la Fig. 32. 2. Mettre la cassette d'essai (QZZCRA) en place dans le support de la cassette. 3. Placez l'appareil en position enregistrement, le sélecteur de bande sur "Normal". 4. Appliquez un signal à 1 kHz du générateur AF, à travers l'atténuateur, à l'entrée LINE IN. 5. Réglez l'atténuateur pour que le niveau d'entrée soit inférieur de -20dB au niveau étalon d'enregistrement. 6. A ce moment, le niveau sur LINE OUT est de 0.039V. 7. Enregistrez les fréquences de 1 kHz, 50Hz, 200Hz, 4kHz, 8kHz et 10kHz (12kHz pour band Fe-Cr, CrO₂ et Metal) à niveau constant. 8. Lisez cet enregistrement et exprimez en dB les différences entre le niveau de sortie de chaque fréquence et le niveau à 1 kHz. 9. S'assurer que la valeur mesurée se trouve dans la plage spécifiée dans le diagramme de réponse en fréquences générale. 10. Changer la bande d'essai sur Fe-Cr (QZZCRY), CrO₂ (QZZCRX) ou Metal (QZZCRZ). 11. Positionner le sélecteur de bande sur chaque position. 12. Mesurer de la même manière de l'étape 3 à l'étape 8.

SECTION	MESURES ET REGLAGES
	<ol style="list-style-type: none"> 13. S'assurer que la valeur mesurée se trouve dans la plage spécifiée dans le diagramme de la réponse en fréquences totale pour les bandes CrO₂ et Metal montré dans les figures 34. <p>Réglage—Utilisation du courant de polarisation 1. Lorsque la réponse en fréquence entre la plage de fréquences moyennes et des fréquences élevées devient supérieure à la valeur standard, comme montré par la ligne continue dans la Fig. 35, se référer au réglage du courant de polarisation. 2. Si elle diminue, comme montré par la ligne pointillée, se référer au réglage du courant de polarisation.</p> <p>Nota: Pour la mesure du courant de prémagnétisation, reportez-vous au paragraphe correspondant.</p>
K Indicateur de niveau Condition: * Position enregistrement * Commande de niveau ...MAX. * Sélecteur de band ...position Normal Equipement: * Voltmètre électronique * Générateur AF * Atténuateur * Résistance (600Ω)	<ol style="list-style-type: none"> 1. Branchez les appareils comme sur la Fig. 32. 2. Comme il est montré à la Fig. 36, le branchement de la base de Q402 à la terre arrête les oscillations du multivibrateur instable comprenant Q402 et Q403. 3. Alimenter d'un 1 kHz (-24dB) a la fiche "LINE IN", puis pousser le bouton d'enregistrement. 4. Régler le ATT de telle façon à ce que le niveau de sortie à la fiche "LINE OUT" devienne 0.39V (Le niveau d'entrée à cette position est nommé le niveau d'entrée standard). 5. Réglage au "-20dB". A. Réglez l'atténuateur pour que le niveau d'entrée soit inférieur de -20dB au niveau étalon d'enregistrement. B. Réglez VR401 de tel façon que le segment de -20dB s'allume dans la zone de -20dB±0.8dB. (L-CH seulement) (Voir Fig. 37). 6. Réglage au "0dB". A. Régler le ATT de telle façon à ce que le niveau de sortie à la fiche "LINE OUT" devienne 0.39V. B. Réglez VR402 de tel façon que le segment de +1dB s'allume dans la zone de 0±0.2dB du niveau d'entrée standard (Voir Fig. 38). 7. Répéter deux fois les étapes 5 à 6 ci-dessus. 8. Réglez l'ATT et vérifiez si tous les segments s'allument quand le niveau d'un signal d'entrée est augmenté de 10dB au dessus du niveau d'entrée standard (Voir Fig. 39).
L Circuit Dolby Condition: * Position enregistrement * Commande de niveau LINE IN...MAX. * Sélecteur de Dolby ...OUT/IN Equipement: * Voltmètre électronique * Générateur AF * Atténuateur * Oscilloscope * Résistance (600Ω)	<ol style="list-style-type: none"> 1. Branchez les appareils comme sur la Fig. 40. 2. Placez l'appareil en position enregistrement et le sélecteur Dolby en position OUT, puis appliquez un signal à 5kHz à l'entrée LINE IN pour obtenir -34.5dB sur TP11 (canal gauche) et TP12 (droit). 3. Vérifiez que la valeur en position IN du sélecteur Dolby augmente de 8 (±2.5)dB par rapport à celle obtenue en position OUT.

RS-M14 DEUTSCH

Messungen und Einstellungen

Anm.:

Für gute Meßbedingungen sorgen. Falls nicht anders angegeben, die Schalter und Regler in folgende positionen stellen.

- Für saubere Köpfe sorgen.
- Für saubere Tonwelle und Andruckrolle sorgen.
- Auf normale Raumtemperatur achten: 20±5°C
- Dolby-Schalter: Aus.
- Bandwahl Schalter: Normal-Position.
- Spitzenwertschalter: LINE.
- Eingangsregler: MAX.

Gegenstand	Messung und Einstellung
A Tonkopf-Positionierung Bedingung: * Wiedergabe und Pause	Die Tonkopf-Positionierplatte dient zum Einstellen des Kontakts zwischen Tonkopf und Band während der Betriebszustände „Cue“ und „Review“. <ol style="list-style-type: none"> 1. Die Wiedergabetaste PLAY und die Pausetaste drücken. 2. Den Abstand zwischen der Andruckrolle und der Tonwelle messen. Sollwert: 0,5±0,3mm 3. Falls der Meßwert außerhalb des Toleranzbereichs liegt, die Schraube A lösen und die Tonkopf-Positionierplatte in Pfeilrichtung B schieben, um den Kopfkontakt einzustellen.
B Senkrechtstellen des Kopfes Bedingung: * Wiedergabe Meßgerät: * Röhrenvoltmeter * Oszillograf * Testband...QZZCFM * Testband (Bandlaufweg-Betrachtungsvorrichtung mit Spiegel)...QZZCRD	Justage des Aufnahme/Wiedergabekopfes <ol style="list-style-type: none"> 1. Den Meßaufbau zeigt Fig. 24. 2. Testband (QZZCFM, 8kHz) wiedergeben. 3. Einstellschraube (B) (Fig. 25) auf maximale Ausgangsspannung einstellen. 4. Beide Kanäle überprüfen und auf gleiche Ausgangsspannung einstellen. 5. Nach dem Abgleich Einstellschraube mit Lack sichern. Abstimmung des Löschkopfes <ol style="list-style-type: none"> 1. Der Meßaufbau ist gleich, wie oben doch wird anstelle des Testband (QZZCFM) das Bandspur-Sichtgerät (QZZCRD) verwendet. 2. Dieses Band wiedergeben. 3. Schraube (C) in Fig. 26 so daß das Band nicht gekräuselt oder durch die Bandführungen des Löschkopfes verformt werden kann. 4. Nach dem Abgleich Einstellschraube mit Lack sichern.
C Bandgeschwindigkeit Bedingung: * Wiedergabe Meßgerät: * Elektronischer Digitalzähler * Testband...QZZCWAT	Genauigkeit der Bandgeschwindigkeit <ol style="list-style-type: none"> 1. Den Meßaufbau zeigt Fig. 27. 2. Testband (QZZCWAT 3000Hz) wiedergeben und Ausgangssignal dem Zähler zuführen. 3. Frequenz messen. 4. Beträgt die auf dem Testband aufgezeichnete Frequenz 3000Hz, so ergibt sich die Genauigkeit nach folgender Formel: $\text{Genauigkeit der Bandgeschwindigkeit} = \frac{f - 3000}{3000} \times 100(\%)$ worin f die gemessene Frequenz ist. 5. Die Messung soll im mittleren Teil des Bandes erfolgen. <div style="border: 1px solid black; padding: 2px; text-align: center;"> NORMALWERT: ±1,5% </div> Einstellung: <ol style="list-style-type: none"> 1. Den mittleren Teil des Testbandes wiedergeben. 2,3. Die Einstellschraube VR Vgl Fig. 22 so verstellen, daß eine Frequenz von 3000Hz angezeigt wird. Schwankung der Bandgeschwindigkeit: Messung, wieoben beschrieben für Anfang, mittleren Teil und Ende des Testbandes wiederholen und Schwankung wie folgt bestimmen: $\text{Schwankung} = \frac{f_1 - f_2}{3000} \times 100(\%)$ $f_1 = \text{Maximalwert}$ $f_2 = \text{Minimalwert}$ <div style="border: 1px solid black; padding: 2px; text-align: center;"> NORMALWERT: Weniger als 1% </div> <p>Anm: Verwenden Sie einen nichtmetallischen Schraubenzieher wenn Sie die Bandgeschwindigkeit justieren.</p>

Gegenstand	Messung und Einstellung
D Frequenzgang bei Wiedergabe Bedingung: * Wiedergabe * Bandwahl Schalter ...Normal position Meßgerät: * Röhrenvoltmeter * Oszillograf * Testband...QZZCFM	<ol style="list-style-type: none"> 1. Den Meßaufbau zeigt Fig. 24, jedoch ist jetzt das Testband QZZCFM zu verwenden. 2. Gerät auf "wiedergabe" schalten. 3. Frequenzgang-Testband QZZCFM wiedergeben. 4. Ausgangsspannungen bei 315Hz, 12,5kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz und 63Hz mit Ausgangsspannung der Standard Frequenz 315Hz vergleichen. 5. Messungen an beiden Kanälen durchführen. 6. Prüfen, ob die Werte innerhalb der in Fig. 28, dargestellten Kurven liegen.
E Wiedergabe-Verstärkung Bedingung: * Wiedergabe * Bandwahl Schalter ...Normal position Meßgerät: * Röhrenvoltmeter * Oszillograf * Testband...QZZCFM	<ol style="list-style-type: none"> 1. Den Meßaufbau zeigt Fig. 24. 2. Standard-Frequenz (QZZCFM 315Hz) vom Testband wiedergeben und Ausgangsspannung messen. 3. Messung an beiden Kanälen durchführen. <div style="border: 1px solid black; padding: 2px; text-align: center;"> NORMALWERT: Ungefähr 0,39V </div> Einstellung: <ol style="list-style-type: none"> 1. Abweichungen können durch Abgleich von VR1 (Linker Kanal) und VR2 (Rechter Kanal) (S. Fig. 22) korrigiert werden. 2. Nach erfolgtem Abgleich ist der Frequenzgang bei Wiedergabe erneut zu kontrollieren.
F Störstrahlung der Vormagnetisierung Bedingung: * Aufnahme * Bandwahl Schalter ...Metal position * Eingangsregler...Max. Meßgerät: * Elektronisches Voltmeter * Oszillograf	<ol style="list-style-type: none"> 1. Die Verbindungen des Prüfaufbaus sind nachstehend wiedergegeben. (S. Fig. 29). 2. Gerät auf Aufnahme schalten. 3. Sperrkreisspulen L1 (Linker Kanal) und L2 (Rechter Kanal) so abgleichen daß der Meßwert minimal wird. 4. Beide Kanäle abgleichen.
G Löschstrom Bedingung: * Aufnahme * Bandwahl Schalter ...Metal position Meßgerät: * Röhrenvoltmeter * Oszillograf	<ol style="list-style-type: none"> 1. Den Meßaufbau zeigt Fig. 30. 2. Die Aufnahme- und Pausentaste drücken. 3. Den Bandwahlschalter in die „Metal“-Position stellen. 4. Löschstrom nach folgender Formel ermitteln: $\text{Löschstrom (A)} = \frac{\text{Die Spannung über beide Enden von R301(V)}}{1 \text{ (Ohm)}}$ <div style="border: 1px solid black; padding: 2px; text-align: center;"> NORMALWERT: 155±15mA (Metal position) </div> <ol style="list-style-type: none"> 5. Falls der Meßwert nicht im vorgeschriebenen Bereich liegt, auf folgende Weise einstellen. Einstellung: <ol style="list-style-type: none"> 1. Die Stelle (A) unterbrechen und den Punkt (B) im Verdrahtungsplan auf der Hauptleiterplatte kurzschließen. (Siehe Seite 10.) 2. Den Löschstrom messen. 3. Überprüfen, ob der gemessene Löschstrom zwischen 140mA und 170mA liegt. 4. Falls er außerhalb dieses Bereichs liegt, folgende Schritte ausführen. <ul style="list-style-type: none"> • Beträgt der Löschstrom weniger als 140mA, den Punkt (A) kurzschließen. • Beträgt der Löschstrom mehr als 170mA, die Stellen (A) und (B) unterbrechen.

Gegenstand	Messung und Einstellung
H Vormagnetisierung Bedingung: * Aufnahme * Bandwahl Schalter ...Normal position ...Fe-Cr position ...CrO ₂ position ...Metal position Meßgerät: * Röhrenvoltmeter * Oszillograf	1. Den Meßaufbau zeigt Fig. 31. 2. Gerät auf "Aufnahme" und Bandwahlschalter auf "Normal" schalten. 3. Spannung vom Röhrenvoltmeter ablesen und Vormagnetisierungsstrom nach folgender Formel berechnen: $\text{Vormagnetisierungsstrom (A)} = \frac{\text{Spannung am Röhrenvoltmeter (V)}}{10(\Omega)}$ <div style="border: 1px solid black; padding: 5px; text-align: center;"> NORMALWERT: Ungefähr 410µA (Normal position) </div> 4. VR7 (Linker Kanal) und VR8 (Rechter Kanal) abgleichen (S. Fig. 22). 5. Den Bandsortenwähler in jede Position stellen. 6. Überprüfen, ob der Meßwert im vorgeschriebenen Bereich liegt. <div style="border: 1px solid black; padding: 5px; text-align: center;"> Ungefähr 440µA (Fe-Cr position) NORMALWERT: Ungefähr 545µA (CrO₂ position) Ungefähr 800µA (Metal position) </div>
I Gesamt-Verstärkung Bedingung: * Aufnahme und Wiedergabe * NF-Eingangsregler...Max. * Standard-Eingangspiegel Mikrofon -72±4dB NF-Eingang -24±4dB Meßgerät: * NF-Generator * Röhrenvoltmeter * Abschwächer * Oszillograf * Testband (Leerband) * QZZCRA für Normal * Widerstand (600Ω)	1. Den Meßaufbau zeigt Fig. 32. 2. Gerät auf "Aufnahme", und Bandwahlschalter auf Normal Position stellen. 3. Über den Abschwächer 1kHz aus dem NF-Generator (-24dB) dem NF-Eingang zuführen. 4. Den Abschwächer so einstellen, daß am NF-Ausgang stehen. 0,39V (-7dB) stehen. 5. Dieses Signal auf Testband (QZZCRA) aufnehmen. 6. Diese Aufnahme wiedergeben und prüfen, ob am NF-Ausgang 0,39V (-7dB) stehen. 7. Ist dies nicht der Fall, so sind VR5 (linker Kanal) und VR6 (rechter Kanal) entsprechend abzugleichen (Siehe Seite 22), 8. Ab Punkt 2 wiederholen.
II Gesamt-frequenzgang Bedingung: * Aufnahme und Wiedergabe * Eingangsregler...Max. * Bandwahl Schalter ...Normal position ...Fe-Cr position ...CrO ₂ position ...Metal position Meßgerät: * Röhrenvoltmeter * NF-Generator * Abschwächer * Oszillograf * Testband (Leerband) * QZZCRA für Normal * QZZCRY für Fe-Cr * QZZCRX für CrO ₂ * QZZCRZ für Metal * Widerstand (600Ω)	Anm.: Vor Messung und Abgleich des Gesamtfrequenzganges ist sicherzustellen, daß der Frequenzgang bei Wiedergabe korrekt ist (Vgl. entspr. Abschnitt). 1. Den Meßaufbau zeigt Fig. 32. 2. Testband (QZZCRA) in das Cassettenfach einsetzen. 3. Gerät auf "Aufnahme" und Bandwahlschalter auf "Normal" schalten. 4. 1kHz vom NF-Generator über den Abschwächer dem NF-Eingang zuführen. 5. Den Abschwächer so einstellen, daß der Eingangspegel -20dB des Stand-Aufnahmepegels betrage. 6. Zu diesem Zeitpunkt beträgt der Ausgangspegel 0,039V. 7. Bei dem gleichen Pegel sind die Frequenzen 1kHz, 50Hz, 200Hz, 4kHz, 8kHz und 10kHz (12kHz für Fe-Cr, CrO ₂ und Metal band) aufzunehmen. 8. Diese Aufnahme wiedergeben und dabei die Abweichungen der Pegel der einzelnen Frequenzen vom 1kHz-Pegel in dB bestimmen. 9. Überprüfen, ob der Meßwert innerhalb des Bereichs liegt, der in dem Frequenzgangdiagramm angegeben ist. 10. Nacheinander das Fe-Cr Testband (QZZCRY) das CrO ₂ Testband (QZZCRX) und das Metal Testband (QZZCRZ) benutzen. 11. Den Bandsortenwähler in jede Position stellen. 12. Bei der Messung von Schritt 3 bis 8 auf die gleiche Weise vorgehen.

Gegenstand	Messung und Einstellung
	13. Überzeugen Sie sich, ob der gemessene Wert in dem angegebenen Bereich liegt. (Siehe Diagramm für die Frequenzgänge von CrO ₂ und Metal bande, Fig. 34). Abgleich mit Vormagnetisierungsstrom 1. Wenn der Frequenzgang zwischen dem mittleren und hohen Frequenzgang höher als der Standardwert wird, wie durch die feste Linie in Fig. 35, angezeigt, die Vormagnetisierungsstrom-Abstimmung durchführen. 2. Wenn er niedriger wird, wie durch die gestrichelte Linie angezeigt, die Vormagnetisierungsstrom-Abstimmung durchführen. Anm.: Für die Messung des Vormagnetisierungsstromes sei auf den Abschnitt "Vormagnetisierung" hingewiesen.
K Fluorezenzmeter Bedingung: * Aufnahme * Eingangsregler...Max. * Bandwahl Schalter ...Normal position Meßgerät: * Röhrenvoltmeter * NF-Generator * Abschwächer * Widerstand (600Ω)	1. Den Meßaufbau zeigt Fig. 32. 2. Wie aus Fig. 36, ersichtlich, hört der astabile, aus den Transistoren Q402 und Q403 bestehende Multivibrator zu schwingen auf, wenn der Base des Q402 mit Masse verbunden wird. 3. Signal vor 1kHz (-24dB) an die Line IN-Buchse eingeben und die Aufnahmetaste drücken. 4. ATT so abstimmen, daß der Ausgangspegel an der LINE OUT-Buchse 0,39V wird. (Der Eingangspegel in dieser Stellung wird als Standardpegel bezeichnet). 5. Justierung auf "-20dB". A. Den Abschwächer so einstellen, daß der Eingangspegel -20dB des Stand-Aufnahmepegels betrage. B. VR401 so abgleichen, daß im Bereich von -20dB±0,8dB das Segment -20dB aufleuchtet (NUR LINKER KANAL). (S. Fig. 37). 6. Justierung auf "0dB". A. ATT so abstimmen, daß der Ausgangspegel an der LINE OUT-Buchse, 0,39V wird. B. VR402 so abgleichen, daß im Bereich von ±0,2dB um den Standardpegel das Segment +1dB aufleuchtet (S. Fig. 38). 7. Die Anleitungsschritte 5 bis 6 zweimal wiederholen. 8. Die ATT einstellen; kontrollieren, ob alle Segmente aufleuchten, wenn der Eingangspegel 10dB höher als der Standardpegel ist (S. Fig. 39).
L Dolby-Schaltung Bedingung: * Aufnahme * Eingangsregler...Max. * Dolby-Schalter ...OUT/IN Meßgerät: * Röhrenvoltmeter * NF-Generator * Abschwächer * Oszillograf * Widerstand (600Ω)	1. Die Verrindungen des Prüfaufbaus sind in Fig. 40 wiedergegeben. 2. Gerät in Stellung "Aufnahme" betreiben und Dolby-Schalter ausschalten. Dem NF-Eingang ein 5kHz-Signal zuführen, daß and TP11 (Linker Kanal) und TP12 (Rechter Kanal) -34,5dB erhalten werden. 3. Prüfen, ob das Signal bei eingeschaltetem Dolby-Schalter um 8 (±2,5)dB größer ist als bei ausgeschaltetem Dolby-Schalter.